WPP 001/4 MB 5,7 n 9

1. Edition

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 740-2L .

supersedes

company:

Daimler-Benz

engine. OM 352

96 kW (131 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Primp Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

Port closing at pres	troke	2 10-2 30)	mm (from BDC)			
Rotational speed ray/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Stidina s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		. ①
of control	rod travel	mm (2a)	of control lever	rev/min	mm · (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1470	15,2-17,8	-	-	. –	ca. 14	100	min. 9,1	250	0,7-1,0
ca. 59	8,7	1455-1465	,				300	7,5-7,7	640	3,2-3,5
	4,0	1550-1580					875	max. 1,0	1035	5,5-5,7
	1700	0 - 1,0				370-520			1425	8,1

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten	stop np. 40°C (104°F) 2	Rotational-speed ②D limitation intermediate speed rev/min	high idle s	peed 50 cm³/1000 strokes	Starting fuel delivery 6 Idle switching point		Torque- travel	Control 5 Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	61,5 - 62,5 (59,5 - 64,5)	1455-1465*	•	-	100	71,0 - 81,0 para 1 3,9-14, mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 u 6

1. Edition

PES 6 A 90 D 410 RS 2569

RQV 300-1400 AB 1111-2L

companyaimler-Benz engine OM 352 88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.20-2.40)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	approx.	100	min. 9,8		0,7-0,9
approx. 62	8,8 4,0 1630	1440-1450 1530-1560 0 - 1,0				28	l .	18,2-8,4 10 = 2,0		3,7-3,8 5,3-5,4 7,7
						3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil terr		imitation intermediate speed	high idle s	rery characteristics 5e peed 50	Starting fuel delivery 6 Idle switching point		Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	73,0-83,0 at 14,8- 15,2 mm RW	630	9,8+0, 11,0+0, 10,8+0, 10,1+0,

Checking values in brackets

* 1 mm lers control rod travel than col. 2



WPP 001/4 MB 3,8 n 9

1. Edition

En

PES 4 A 90 D 410 RS 2570

ROV 300-1400 AB 1111-3L

supersedes
companDaimler-Benz
angine: OM 314
57 kW (77 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,20-2,40)	mm (Irom BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	10,5+0,1	5,9 - 6,0	0,3(0,45			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed			Lower rated	speed			Sliding s	leeve travel
deflection	Control	travel \	וכ	Degree of deflection		Contr travel			Degree of deflection		Contro travel	bor l		①°
of control	rod travel mm	mm rev/min (2	- 11	of control lever	rev/min	mm	(4	of control lever	rev/min	mm	3	rev/min	mm
1	2	3	-	4	5	6		_	7	8	9		10	11
max.	1500	15,2-17,8	8	-	-		-		approx.		min.			0,7-0,9
approx.	9,5 4,0 1650	1440-1450 1535-1560 0 - 1,0	5						24	300 545-6	8 , 3- 505 =		1000	4,8-4,9 5,3-5,4 7,7
	2000								3 a					

Torque control travel a =

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C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 26 imitation intermediate speed		very characteristics 5a	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min .4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm 9
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	71,0-81,0	1400 400 600	10,5+0, 11,5+0, 11,1+0, 10,8+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 v 1

3. Edition

stoil-ISO 4113

PES6A90D410RS2571

RQV300-1400AB884L

supersedee 1.80

company: Daimler-Benz engine: <u>OM</u> 352 A

$$1 - 5 - 3 - 6 - 2 - 4$$

 $0 - 60 - 120 - 180 - 240 - 300 \stackrel{+}{-}0,50 (9,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,00-2,10 mm (from BDC) Port closing at prestroke 95-2 15) Spring pre-tensioning (torque-control valve) Fuel delivery Difference Control rod Control rod Fuel delivery Rotational speed cm³/ cm³/100 strokes 100 strokes cm³/100 strokes mm rev/min mm 6,8 - 6,90,3(0,45 1400 12.2 +0.1 0,8 - 1,40,2(0,4)300 6,4-6,6 0.4(0.55 600 C. 4-5

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed			Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel		of control	rey/min	Control rod travel	Degree of deflection of control lever	rev/min	Control ro travel	d (3)	rev/min	mm (1)
lever 1	mm 2	rev/min (21)	4	5	6	7	8	9		10	11
max.	1400	15,2-17,8	-	-	-	approx.		min.8, 6,4-6,			
approx.	11,2 3,4 1750	1440-1450 1575-1605 O = 1,0				3a		max.1, -640 =			

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rostional-speed (20) Ismitation intermediate speed	Fuel delivingh idle s	ery characteristics (5a) peed (5b)	Starting Idle switching		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm
1490	68,0 - 69,0 (66,0 - 71,0)	1440-1450*	600	53,0 - 55,0 (51,0 - 57,0)		73,0-83,0		
					100-2	220(80-249)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 e 1 & Edition

En.

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL

supersede6.82 company:Daimler-Benz engine: OM 352

All test specifications are valid for Besch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	3	4	:nm 2	3	6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	7,3-7,5	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	speed		Intermediate	rated spe	eed	Lower rated	speed		Sliding s	eeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm 1
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-		100 300	min.7,5 5,9-6,9	660	0,8-1,1 3,4-3,8
approx.	7,2 4,0 1700	1505-1515 1545-1575 0 - 1,0				330-450			1060 1475	5,3-5,5 8,3
	1700	0 - 1,0				39				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten				rery characteristics (58)	Starting Idle switching	<u> </u>	Torque- travel	Control rod
rev/min	crh³/1000 strokes .	rev/min .44	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47, 5 (44,0-49,0)	100	71,5-81,5 bei 12,9-13, mm RW	3 500 800	8,2-8,3 9,2-9,3 8,9-9,1 8,4-8,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 \times 2

2. Edition

PES 6 A 90 D 410 RS 2293

ROV 300-1400 AB 880 DL

supersede6.82
Daimler-Benz

company: OM 352

engine: 88 kW (120 PS)

ostoiliso 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,10-2,30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1380	9,7-9,8	6,0 - 6, 1	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			
				}		
			<u> </u>			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Siiding s	leeve travel
	rev/min Control rod travel mm	Control rod (18 travel mm rev/min (2)	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
ļ t	2	3	4	5	6	7	8	9	10	11
max.	1430	15,2-17,8	-	-	-	approx.	100	min.9,2	250	0,9-1,1
approx. 59	8,7 4,0 1650	1420-1430 1510-1540 0 - 1,0				14 375-525		7,6-7,8		3,2-3,6 5,6-5,8 8,2
		0.65				3				

Torque control travel a = 0,65 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) Tev/min Cm³/1000 strokes		Rotational-speed (2b) limitation intermediate speed rev/min	Fuel delin high idle s rev/min	cm³/1000 strokes	idle switchir		Torque- travel	Control 5 Control rod travel
,	2	3	4	5	8	7	8	9
1380	59,5-6 0, 5 (57,5-62,5)	<u>-</u>	600 1000	48,0-5 1,0 (46,0-5 3,0) 54,5-5 7,5 (52,5-59,5)	100	13,8-14,2 mm RW	600 885	9,7+0,1 10,3+0,1 10,1+0,2 9,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 w 1

2. Edition

PES 6 A 90 D 410 RS 2565

RQV 300-1400 AB 884 L .

supersedes 10.80

company: Daimler Benz

engine: 0M 352

All test specifications are vised for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	, and	2:10-2:20	mm (from BDC)	· · · · · · · · · · · · · · · · · · ·		
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	11,1	6,1 - 6,2	0,3(0,45		·	
	+ 0,1					
300	6,0-6,2	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•		Sliding s	leeve tr	avel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control ro	đ		(1
1.	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm	(3)	rev/min	mm	
1	2	3	4	5	6	7	8	9		10	11	
max. approx. 60	1400 10,1 3,4 1750	15,2-17,8 1440-1450 1575-1605 0 - 1,0				approx. 13 310-380	300 590-	min.8, 6,0-6, 550=2,0	,2			
						3						

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv high idle s	very characteristics (5a)	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min	cm³/1000 strokes .	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm mm
1	2	3	4	5	6	7	8	9
1400	61,0 - 62,0 (59,0 - 64,0)	1440-1450*	600	51,5-53,5 (49,5-55,5)	100	73,0-83,0 at 13,0 - T3,4 mm RW		
					100-	220(80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 3,8 g 3

1. Edition

PES 4 A 90 D 410 RS 2294

RQV 300-1425 AB 74Q-2 L

supersedes

company:

Daimler-Benz OM 314

angine:

62 kW (84 PS)

Unimog

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		10-2-30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,3 - 6,4	0,3 (0,45			
300	6,8-7,0	0,9 - 1,5	0,2 (0,4)			
	ŀ					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control	Control rod travel	denection		Control rod travel	Degree of deflection of control		Control rod travel		1
1 .	rod travel	rev/min (28	of control lever	rev/min	mm (4)	lever	rev/min	mm (3)	rav/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1425	16,0-19,4	-	-	-	approx.	100	min.7,4	250	0,8-1,0
approx	8,7	1460-1470	1			10	300	5,8-6,0	640	3,2-3,5
61	4,0	1535-1565					750	max.1,0	1035	5,5-5,8
	1650	0 - 1,0				370-520			1425	8,1

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe	de:at	limitation	Fuel deliv	very characteristics 58 peed (5b)	idie		Torque- travel	control (5)
Test oil ten	np. 40°C (104°F) (2) cm³/1000 strokes	intermediate speed rev/min 4a	rev/min	cm³/1000 strokes	switchir rev/min		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	62,5-63,5 (60,5-65,5)	1460-1470 *	-	-	100	13,7-14,3 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

BOSCH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 3,8 g 2 2. Edition

En

PES 4 A 90 D 410 RS 2294

RQV 300-1425 AB 740 L

superse@s82 companDaimler-Benz engine: OM 314

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Eanches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2.1 - 2.3)	mm (from BDC)	mm (from BDC)								
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)						
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm						
1	2	3	4	2	3	6						
1400	9 , 7 - 9,8	6,3 - 6,4	0,3(0,45)									
300	6,8-7,0	0,9 - 1,5	0,2(0,4)									
					·							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	i 1	1_	Intermediate	rated sp	ı	Lower rated	speed	1_	Sliding sleeve travel	
deflection	rev/min Control	Control rod (18	/ denection		Control rod travel	Degree of deflection		Control rod travel		· ①
	rod travel mm	rev/min (2)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	ww
1	2	3	4	5	6	7	8	9	10	11
max.	1425	16,0-19,4		-	-	approx.	100	min.7,4		0,7-1,0
approx	8,7	1460-1470				10	300	5,8-6,0		3,2-3,6
61	4,0 1650	1535-1565	1				750	max.1.0	1425	5,5 - 5,7 8,1
1	1030	0 - 1,0	'			3 70 – 520		-		
						3€				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros	stop 🔾	limitation	Fuel deliv	very characteristics (5a)	Idie	. 0	Torque- travei	control (5)
rev/min	np. 40°C (104°F) (2)	rev/min	rev/min	cm ³ /1000 strokes	1	switching point rev/min XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		Control rod travel mm
1400	62,5 - 63,5 (60,5 - 65,5)	1460-1470 *	-	-	100	13,7-14,3 mm RW	~	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MAN 9,2 k 1 1. Edition

1___

PES 5 A 95 D 410 LS 2543 Z: RQV 250-1100 AB 1038 DL

supersede5

company:MAN

1 - 3 - 5 - 4 - 2 je $72^{\circ} + 0.5^{\circ} (+ 0.75^{\circ})$

engine: D 2565 M/MF 124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (1.45-1.65)	mm (from BDC)	Zv1. 5		
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,6+0,1	9,3 - 9,5	0,3 (0,6)			
250	5,9-6,1	0,9 - 1,5	0,3 (0,5)			
1100	10,0+0,1	C.Sp. 4u.5	0,4			
500	10,7+0,2		, , ,			
i	I	i	1	1	J	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	rated sp	eed	Lower rated	speed		Slictions	Sliding sleeve travel	
deflection	rev/min Control rod travel	Control rod (18	of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding s	1	
lever	mm	rev/min (28	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
max.	1140	14,4-17,6		-	-	approx.	100	min. 7,5	200	0,7-0,9	
	9,0	1140-1150				13	250	5,9-6,1	500	3,5-3,8	
approx	4,0	1165-1195		ĺ			315-	375 = 2,0	800	5,0-5,4	
	1300	0 - 1,0				3 a)	450	max. 1,0	1100	7,7	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rod Test oil ten		Rotational-speed (2b) limitation intermediate speed rev/min (4a)	high idle s	very characteristics 5e peed 50 cm ³ /1000 strokes	Starting fuel delivery 6 Idle switching point rev/min cm³/1000 strokes		Torque- travel	control 5 Control rod travel mm
1	2	3	4	5	в	7	8	9
700	92,5-94,5 (90,5-96,5)		1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5		10,0+0, 10,6+0,
			500	90,5-94,5 (88,5-96,5)			500	10,7+0,
		·				l		

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5c 3. Edition

PES 6 A 90 D 410 RS 2633

RQV 300-1500 AB 1152 L

supersedes 6.82

company:

8060.04.661

engine

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		2,2-2,3 2 15-2 35)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1 :	2	3	4	2	3	6
1500	9,0-9,1	4,9-5,1	0,3 (0,4)	,	
300	8,2-8,4	1,1-1,7	0,2 (0,4			·
:						
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermedia	te rated sp	eed	Lower rated	speed		Sliding s	eeve travel
deflection	rev/min Control	Control rod travel	/ deflection		Control rod travel	Degree of deflection of control		Control rod travel		1
N .	rod travel mm	rev/min (2	of control lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1525	15,2-17,8	-	-	-	approx 17	100 300 900	r	250 670 1080 1500	1,1-1,3 4,5-4,8 5,0-6,2 8,3
approx. 59	8,0 4,0 1800	1540-1550 1635-1665 0 - 1,0				330-430 ③			1500	3,3

Torque control travel = = 0,6

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deliv high idle s	ery characteristics (5a)	Starting idle switchir	•	Torque- travel	control 5 Control rod travel
r ev /min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm 9
1500	48,5-49,5	1540-1550	900	42,0-45,0	100	68,0-78,0	1500	9,0+0,1
1500	(46,5-51,5)	1340-1330		(40,0-47,0)	100		500	9,6+0,1 9,4+0,
							1030	7,040,
		·				•		

Checking values in brackets

* 1 mm less control rod travel than col. 2 8.82

WPP 001/4 FIA 5,5 d

1. Edition

PES 6 A 90 D 410 RS 2633

RQV 300-1500 AB 1165 L

supersedes

companyFiat engine: 8060.04.662

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min		Fuel defivery cm³/100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed	•	Slidina s	leeve travel
1 - 0	rev/min Control rod travel mm	Control rod travel mm rev/min	(1a) (28)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
1	2	3		4	5	6	7	8	9	10	11
max.	1530	15,2-17	8,	-	-	-	approx		min. 9,7	250	1,1-1,3
approx. 59		1540-155 1645-167 0 - 1,	75				330 - 430		18,2-8,4 60 = 2,0 max. 1,0	670 1080 1500	4,5-4,8 6,0-6,2 8,4
							3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel deliv	rery characteristics 5a	Starting Idle switchir		Torque-control 5 travel Control ro travel	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm travei
1	2	3	4	5	6	7	8	9
1500	52,5-53,5 (50,5-55,5)	1540-1550*	-	-	100	68,0-78,0	1500 500 930 1130	9,1+0,1 9,6+0,1 9,4+0,2 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

KHD 15,8 k

1. Edition

PE 10 A 90 D 610/4 LS 2243

RQV 300-1250 AB 1005 DL

supersedes

company:

engine:

F 10 L 413 L 199 kW (270 PS)

KHD

at 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

1-10-9-4-3-6-5-8-7-2 0-27-72-99-144-171-216-243-288-315 0-27-72-99-144-171-216-243-288-315

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	10,0-10	1 7,3 - 7,4	0,3(0,4	5)		
250	7,4-7,6	0,9 - 1,5	0,2(0,4)		
		·				
	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	eed	Lower rated	speed		Sliding s	eeve travei
deflection	Control	Control rod (1a) travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
of control lever	rod travel	mm rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8				approx.	100	mind.7,5	200	0,2-0,8
approx.	9,0	1290-1300	†			13	300	5,9-6,1	600	2,4-3,0
64	4,0	1335-1365 0 - 1,0					630-	690=2,0	1290	8,2
						(3a)	350-	450		

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr	1 stop np. 40°C (104°F) 2	limitation intermediate speed			Starting Idle switchir	ng point	Torque- travel rev/min	Control 5 Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	72, 5-73, 5 (70, 5 - 75, 5)	1290-1300*	1000 800	67, 5-70, 5 (65, 5-72, 5) 70, 5-73, 5 (68, 5-75, 5)	100	14,0-15,0 mmRW	1000 800	10,0-10, 10,0-10, 10,4-10, 10,9-11,
							<u> </u>	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 19,0 k

1. Edition

PE 12A 95D 610LS 2453 ROV 300-1150 AB 1083 L

supersedescompany:KHD

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 $0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° <math>\stackrel{+}{-}0,5°$ ($\stackrel{+}{-}0,75°$)

engine: F 12 L 413 F 260 kW(352PS) 75°) at 2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15) 2,00-2,10

mm (from BDC)

1 011 0100 mg at pro-		2.00-2.10				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5-9,6	8, 8 - 9,0	0,3(0,6)			
300	6,4-6,6	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control	travei \	1a)	Degree of deflection of control		Control ro travel	d	Degree of deflection of control		Control rod travel	J	1
of control lever	rod travel	rev/min (2a)	lever	rev/min	mm	4	lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6		7	8	9	10	11
max.	1150	15,2-17	7 , 8	1	-	-		66	100 300 640-7	min.8,0 6,4-6,6 00=2,0	300 750 1190	1,4-1,6 4,0-4,3 8,5
approx.	8,5 4,0 1400	1190-120 1240-123 0 - 1	70					320-400 ③				0,0

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d	distop	limitation	Fuel deliv	rery characteristics 5a peed (5b)	Idle		Torque-control 5		
Test oil ten	np. 40°C (104°F) (2) cm³/1000 strokes	rev/min 4a		cm ³ /1000 strokes		switching point rev/min cm³/1000 strokes		Control rod travel mm	
1	2	3	4	5	6	7	8	9	
150	87,5 - 89,5 (85,5 - 91,5)	1190-1200*	1000 70 0	87,0-90,0 (85,0-92,0) 88,0-91,0 (85,0-92,0)	100 100-	120 - 1.30 at 14,3 - 14,7 mm RW 220 (80-240)	945 800 700	9,5-9,6 9,5-9,8 9,8-10, 9,9-10,0 9.9-10,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 12,7 4

1. Edition

_En

PE 8 A 95 D 410 LS 2451

RQV 300-800/1100 AB 973 DL

The specifications given in KHD 1 d are no longer valid due to governor modification.

supersedas KHD-KÖln company: 8 L 413 F engine162 kW at 2200 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.95-2.15

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pra-tensioning (torque-control valve) mm 6
1100	9,4-9,5	8,7 - 8,9	0,3(0,6)			
300	5,4-5,6	0,6 - 1,2	0,3(0,5)			
:						

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	eed	Lower rated	Sliding s	eeve travel		
deflection	Control	Control rod (1a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	<u> </u>	0
_	rod travel mm	rev/min (2a)		rev/min	mm (4)		rev/min	mm (3)	rev/min	mm
] ,	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	ca.53	8,5	695-705	approx	100	min.7,0	300	1,2-1,3
approx.	8,4	1140-1150		4,0	755-785	11	300	5,4-5,6	450	2,7-3,1
64	4,0 1350	1205-1235	1	','		 320-380	650	max.1,0	850	7,5-7,7
	טכני	0 - 1,9				(3a)	495-5	555 = 2,0	1140	8,8

Torque control travel a = U , O mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-land de Control-roe	d stop	limitation	Fuel deliv	very characteristics 58	Starting Idle switchin		Torque- travei	Control rod
Test oil ten	np. 40°C (104°F) (2) cm³/1000 strokes	rev/min 4a	İ	cm³/1000 strokes		cm ³ /1000 strokes	rev/min	travel
1	2	3	4	5	6	7	8	9
1100	86,5 - 88,5 (84,5 - 90,5)	1140-1150*	700 400	88,5 - 92,5 (86,5 - 94,5) max. 84,5 (max. 86,5)		110,0-120,0 at 13,2 - 14,2 mm RW 20 (80-240)	800	9,4-9,5 9,8-10,0 10,1-10,

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 WPP 001/4 KHD 19,0 h and Governors

En . Edition

PE 12 A 95 D 610 LS 2453

RQV300-1150 AB 1047 DL ·

company:

 1^{-} 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 0 -15 -60 -75 -120-135-180 -195 -240-255-300-315° $\stackrel{\text{engine}}{=}$ ($\stackrel{\text{engine}}{=}$ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,1-9,2	7,9 - 8, 1	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	(1a)	Degree of deflection		Control ro	d	Degree of deflection		Control rod travel		1
	rod travel mm	mm rev/min	(2a)	of control lever	rev/min	mm	4	of control lever	rev/min	mm (3	rev/min	mm
1	2	3		4	5	6		7	8	9	10	11
max.	1150	15,2-17	, 8	-	-	-		approx 11	300	min.7,5 5,9-6,1 600=2,0		1,4-1,6 4,0-4,3 8,5
approx. 64	8,1 4,0 1350	1190-12 1225-12 0 -						325-400 ③				

Torque control travel a = 0.5

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem	stop ip. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed rev/min (4a)	Fuel delive high idle s		Starting fuel delivery 6 Idle switching point rev/min cm³/1000 strokes		Torque- travel rev/min	Control 5 Control rod travel mm
1150	2 78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800	78,0 - 81,0 (76,0 - 83,0)		119 - 129	8 1150 850 500	9,4-9,6

Checking values in brackets

1 mm less control rod travel than col 2

stoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 g 1. Edition

En

PE 12 A 95 D 610LS 2449 RQV 300-1250 AB 1105 L

supersedes

KHD

company
BF 12 L 413 F

engine: 353 kW at 2500 min

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 $0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° <math>\stackrel{+}{-}0,5°$ ($\stackrel{+}{-}0,75°$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1250	11,3	11,4 - 11,6	0,2(0,25)		·	
300	5,9-6,1	0,9 - 1,5	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	4		Stiding s	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm (3	rev/min	mm (1)
1	2	3	4	5	6	7	8	9		10	11
max.	1250	15,2-17,8			·	approx 12	100 300	min. 7 5,9-6,1			
approx. 66	10,3 4,0 1500	1290-1300 1360-1390 0-1,0	-			325-410 (3a)					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes	Rotational-speed (2b) Fuel delivery characteristics high idle speed (5b) rev/min cm³/1000 strokes		(/	Starting Idle switchin	. 0	Torque- travel	Control cod travel mm 9+0,1
LDA 0,7bar 1250 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900 LDA 500	(1160-123,0) 0 bar	100-2	130,0-140,0 20 (80-240)	1250 1100 900	11,3 11,6 12,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/gove/nor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
2449 with 1105 L	0,7		12,0 - 12,1
•		0,45	11,5 - 11,6
		0,20	10,0 - 10,2
		0	9,5 - 9,6
		·	
			į

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 KHD 12,7 n 1. Edition

PE 8 A 95 D 410 LS 2609

ROV 300-1250 AB 1128 L

supersedes

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° $^{+}0,5$ ° ($^{+}0,75$ °)

companyKHD engine: BF 8 L 413 F 235 kW (320 PS) at 2500 min -

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke(1 95-2 15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4 .	2	3	6
1250	11,6+0,1	11,6-11,7	0,3(0,6)			
300	5,9-6,1	1,6-2,2	0,3(0,5)			
	<u> </u>					
	ļ			L	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intern	nediate	rated spe	ed	Lower rated	speed	•	Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm 2	travel	Degree deffection of contact the contact t	ction ntrol	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
max.		15,2-17,8		,	•	-	approx	100	min. 7,5 5,9-6,1	L	0,5-0,8 2.9-3,1
approx. 57		1290-1300 1370-1400 0 - 1,0)				380-55		, 0,0 0,1	1	4,7-4,9 7,7
		_		,			(3a)				<u> </u>

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Control-rod	Rotational-speed 2b Fuel delivery characteristrol-rod stop oil temp. 40°C (104°F) 2 Imitation intermediate speed 5b Fuel delivery characteristric intermediate speed 5b Fuel d		peed 50 cm³/1000 strokes	Starting Idle switchin	ng point	Torque- travel	Control 5 Control rod travel	
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 116,0-117,0 (114,0-119,0)	1290-1300 *	LDA 750 LDA 500	0,7 bar 121,0-124,0 (119,0-126,0) 0 bar 101,5-103,5 (99,5-105,5)		130,0-140,0 at 15,2- 15,6 mm RW	750	11,6+0, 12,4+0, 12,1+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PE 8 A LS2609 with AB 1128	0,27	0,7	12,1-12,2 12,4-12,5 11,7-11,8

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q 2

8. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 AOB 783 L

supersedes 82

company: Daimler-Benz

OM 352 A

110 kW (150 PS)

Maß H = 22,5 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Banches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1300	11,0+0,1	7,0-7,1	0,3(0,45)			
350	6,9-7,1	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower	rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	350	6,5	1300	11,0+0,1
approx	X =	3,5					350	min.19,0 6,9-7,1		11,6+0,1 11,4+0,2
65 ⑤	10,0 4,0 1550	1340-1350 1435-1465 0,3-1,7					570-6	30= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil t em p rev/min 1	. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300 800	0,7 bar 70,0-71,0 (68,0-73,0) 65,5-68,5 (63,5-70,5)	1340-1350*	500	0,7 bar 60,0-63,0 58,0-65,0) 0 bar 54,0-56,0 (52,0-58,0)	100	13,8-14,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A RS 2293	0,38		11,4 - 11,5
with AOB 783 L		0,7	11,6 - 11,7
• .		0	10,8 - 10,9
	•	0,28	11,0 - 11,2

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Testing the hydraulic start-locking device

Locking at: 0.45 - 0.55 bar Unlocking at: 0.25 - 0.35 bar

40

WPP 001/4 MB 5,7 v 11

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 1141 L

supersedes

company:Daimler-Benz

engine: OM 352 A

123 kW (167 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.95-2.15) mm (fr

· · · · · · · · · · · · · · · · · · ·		(1,90-2,10)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3 .	6
1380	12,3+0,1	7,9 - 8,0	0,3 (0,45	þ		
350	7,9-8,1	0,9 - 1,5	0,2 (0,4)			
						•

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•		approx.				
approx	Х =	5,75				14	350 580-6	7,9-8,1 40 = 2,0		
5 5	11,3 4,0 1680	1420-1430 1520-1550 0,3-1,7					330-0	- 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop			Starting Idl e	fuel delivery	5a idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strakes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
LDA 1380	0,7 bar 79,0-80,0 (77,0-82,0)	1420-1430*	LDA 600 LDA 500	0,7 bar 76,5-79,5 (74,5-81,5) 0 bar 51,5-52,5 (49,5-54,5)	100	78,0-88,0 bei 16,4- 16,8 mm RW	-	· -

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6ARS2596 withAOB1141L		0,70	13,3 - 13,4
WICH WORLTAIL	0.50	0	11,4 - 11,5
	0,52	0.01	13,0 - 13,1
		0,21	11,8 - 12,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at: 0.45 - 0.55 bar Unlocking at: 0.25 - 0.35 bar

estoil-ISO 4113

WPP 001/4 MB 5,7x3

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 1148 L

supersedes -

company: Daimler Benz

engine OM 352 A

115 kW (155 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.00-2.10

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1380	11,6+0,1	7,3 - 7,4	0,3(0,45			
350	7,9+0,2	0,9-1,5	0,2(0,45			
				Ì		
	l		<u> </u>		<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower	4 Lower rated speed			que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/m:n	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0				approx	350	7,5	1380	11,5+0,
approx.	x =),°				21	100 350	min. 19 7,9-8,1 590 = 2,0	500 950	12,6+0,1 12,0+0,1
5	1510-1	540 = 4,0 0.3 - 1.7					J30-	030 - 250		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2					Starting Idle	fuel denvery	Sa Idle stop	
		Note changed to rev/min 3	rev/min 4	cm³/1000 strokes	rev/min 6	cm³/1∂00 strokes 7	rev/min 8	Control rod travel mm
LDA 1380	0,7 bar 73,0-74,0 (71,0-76,0)	1420-1430*	LDA 500 LDA 500	0,7 bar 63,5-66,5 (61,5-68,5) 0 bar 54,0-57,0 (52,0-59,0)	100	78,0-88,0 bei 15,6- 16,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

ump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 2596 with AOB 1148 L .	0,43	0,7 0 0,29	12,4 - 12,5 12,6 - 12,7 11,6 - 11,7 12,0 - 12,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Prüfen der hydraulischen Startverriegelung:

Verriegelung bei 0,40 - 0,50 bar Entriegelung bei 0,15 - 0,25 bar

Testoil-ISO 4113

WPP 001/4 RAB 10,8 a

2. Edition

PES 6 A 100 D 410 RS 3039 R

RSV 475-950 A 1 B 2121 L

supersedes 5.82 company RABA

engine: 184 kW (250 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,6 -1,7 (1,55-1,75)

mm (from BDC

Rotational speed	tra vel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
950	13,6+0,1	15,2-15,4	0,3 (0,6			
475	5,9-6,1	1,2-1,6	0,3 (0,5			
				,		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Legree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	3	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	475	5,5	950	13,6+0,
approx.	· x =	3,75				27	E .	min.19,5 5,9-6,1	500 840	15,3+0, 14,4+0,
5	12,6 4,0 1195	990-1000 1030-1060 0,3-1,7					570- 675	630 = 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop					Starting idle	fuel delivery	(5a) ldle stop	
Test of temp 40°C (104°F) rev/min cm ³ /1000 strokes 1 2		Note changed to rev/min 3	rev/min cm³/1000 strokes 5		rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 950	0,7 bar 152,0-154,0 (150,0-156,0)	990-1000*	LDA 750 LDA 500	0,7 bar 180,0-184,0 (18 ,0-186,0) 0 bar 145,0-149,0 143,0-151,0		-	-	-

Checking values in brackets

* 1 mm less control rod travel then col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 3039 withA 1 B 2121	0,7	0 0,55 0,42	15,3 - 15,4 13,7 - 13,8 15,0 - 15,1 14,1 - 14,3

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

40

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9b

3. Edition

PES 6 A 90 D 210 RS 2465 Z RSV 250-

RSV 250-1200 A 0B 743 L

En

supersedes6.82 company: Ford

engine: LKW - Tornado

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,50-2,60

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3		Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,9+0,1	7,9 - 8,0	,3(0,45)			
300	7,9-8,1 	0,9 - 1,3),2(0,4)	·		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever		Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	(3) Tor	que control Control rod travel mm
loose	800	0,3-1,0	_	-	-	approx.		7,5	-	-
approx.	X =	2,5				10	300	nin. 19 7,9-8,1		
56 ⑤	1240-1 1330-1	250 = 9,9 860 = 4,0 3-1,7					600-6 800	60= 2,0 0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Futl+oa	ed stop	6 Rotational speed irritat		el delivery tracteristics	Starting idle	fuel delivery	(5a) los	
Test oil temp 40°C (104°F) rev/min cm²/1000 strokes 1 2		Note changed to rev/min	rev/min cm³/1000 strokes 4 5		rawknan 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
LDA 1200	0,66 bar 78,5-79,5 (76,5-81,5)	1240-1250*	LDA 400	0 bar 44,5-46,5 (42,5-48,5)	-	-		-

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

1200

rev/min decreasing pressure = in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2465 _E Z with 743 L	0,66		10,9 - 11,0
•		0,47	10,6 - 10,8
		0,34	10,1 - 10,2
		0	10,0 - 10,1
		; ;	

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

WPP 001/4 EIC 3,9 b

1. Edition

En

PES 4 A 80 D 320 RS 2651

RSV 300-1075 A1B 2175 R

supersedes _
companyEicher
engine EDL 4-1

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

Port closing at prestroke (2,1-2,3)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1075	10,5+0,	1 6,2-6,3	0,2 (0,3	5)		
300	9,4-9,6	3,0-4,0	0,2 (0,3			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx. 26	300	9,0	1075	10,5+0,
approx.	X =	5,5					100 300	min 19,5 9,4-9,6	500 825	11,3+0, 10,8+0,
57 ⑤	9,5 4,0 1330	1115-1125 1165-1195 0,3-1,7					450-			, , ,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+o	ad stop	6 Rotational- speed limitat.		if delivery tracteristics	Starting Idle	fuel delivery	(5a) kd#	e stop
Test of temp. 40°C (104°F) rev/min. cm³/1000 strokes 1. 2		Note changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min cm³/1000 strokes 6 7		revirma 8	Control rod travel mm
1075	62,0-63,0 (60,5-64,5)	1115-1125*	600	64,5-66,5 (63,0-68,0)	100	17,4-18,0 mm RW	_	-

Checking values in brackets

* 1 mm less control rod travel than col 2

estoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4

MB 5,7 w5

4. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-1400 AOB 1135 L

supersedes 2

2.82 Daimler Benz

engine:

company

OM 352

92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40) mr

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel de:ivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	10,8+0,1	6,2-6,3	0,3(0,45)			
350	7,9-8,0	0,5-1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	e rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	350	4,1	1400 750	10,8+0, 10,8+0
approx	x =	5,0				24	350 610 - 6	7,9-8,0 70 = 2,0	500	11,3+0
65 ⑤	1440- 1550-	450=9,8 580=4,0 ,3-1,7						, 0 -2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+k	pad stop	6 Rotational- speed limitat. (3a) Fuel delivery characteristics			Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min	rev/min cm³/1000 strokes		rev/min cm³/1000 strokes		rev/min	Control rod travel mm
1400	62,5 - 63,5 (60,5 - 65,5)	1440-1450*	500	44,5 - 47,5 (42,5 - 49,5)	100	79,25-89,25 16,2-16,6 mm RW	-	-
		·	900	53,5 - 5a,5 (51,5 - 58,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 MB 5,7 w 10

1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-1400 AOB 1135-1 L

supersedes

company

Daimler-Benz

engine: 0M 352

88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm³/ 100 strokes 4	travel mm 2	cm ³ /100 strokes	mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45			
350	8,3-8,5	0,9 - 1,5	0,2 (0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper of Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lower Degree of deflection of control lever 7	rated spe rev/min 8	Control rod travel	3 Tor	que control Control rod travel mm 11
loose	800 x	0,3-1,0 = 5,25	-	-	-	approx 20	350 100	7,9 min.19,0	1400 500	9,8+0, 11,1+0,
63 ⑤	8,8 4,0 1600	1440-1450 1505-1535 0,3-1,7					350 610-6	8,3-8,5 70 = 2,0	950	10,6+0,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2) Full+02	id stop	6 Rotational- speed limitat.		d delivery racteristics	Starting Idle	fuel delivery	(Sa) Idle	
rest oil temp. 40°C (104°F) ev/min cm³/1000 strokes t 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	78,0-88,0 bei 16,2- 16,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 EIC 2,9 c 1

1. Edition

-11

PES 3 A 90 D 320 RS 2626 RS

RSV 300-1050 A 1 B 2171 R

1 - 3 - 2 je $120^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersedes_

company: Eicher

engine: EDL 3-1

40 kW (54 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1050	11,4+0,1	7,3 - 7,4	0,2(0,45			
300	9,7-9,9	3,3 - 3,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travei mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	300	9,3	1050	11,4+0,1
	x =	5,0				28	100	nin.19,5	500	12,0+0,1
approx.	-		•				300	9,7-9,9	890	11,7+0,2
59 ⑤	10,4 4,0 1310	1090-1100 1145-1175 0-3-1-7					445-5	05 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+o	ad stop	() · · · · · · · · · · · · · · · · · ·			Starting Idle	fuel delivery	5a idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1050	73,0-74,0 (71,0-76,0)	1090-1100*	500	66,5-69,5 (64,5-71,5)	100	78,0-88,0 bei 14,0 - 14,6 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 PEN 10,0 d

•

1. Edition

PE 6 P 110 A 320 RS 138 Z

RSV 200-900 P 1/305 R

supersedes =

company: Volvo Penta

engine. D 100 B/PP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,55-2,75)	mm (from BDC)	mm (from BDC) bei RW 9.0-12.0 mm							
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm .					
1	2	3	4	2	3	6					
700	8,4-8,5	8,8-9,0	0,4 (0,8)								
225	5,3-5,5	1,0-1,4	0,3 (0,6))							
					•						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min	Control rod travel mm	4 Lower Degree of deflection of control lever	rated spe rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm
loose	800 x =	0,3-1,0 4,75	-	-	-	approx.	225 100	4,9 min.20,0	-	-
approx 54 5	7,4 4,0 1130	940-950 970-1000 0.3-1.7	-1				225 310-	5,3-5,5 370=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Retational- speed limitat.	(0) (6.200.0.			fuel delivery	(5a) Idle stop		
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to : rev/min 3	rev/min	cm ³ /1 000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
700	88,0-90,0 (85,0-93,0)	940-950*	-	-	100	310,0-340,0 bei 20,0 - 21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 PEN 12,0 a 2 2. Edition

Eat

PE 6 P 110 A 320 RS 175

RSV 200-900 P4/421 R

supersedes 8.81

company: Volvo-Penta

engine TD 120

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,55-2.75)

mm (from BDC)

		(1,00 2,70)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	8,4-8,5	11,9 - 12,1	0,4(0,8)			25 ± 0.1 (2,2 - 2,9)
225	5,1-5,3	1,3 - 1,7	0,25(0,5	5)		
		<u> </u>		l	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0	-	-	-	approx.	225	4,7	-	-
approx.	x =	5,0				25		min. 19,0 5,1-5,3		
56 5	7,4 4,0 1120	940-950 955-980 0.3-1.7						40=2,0 mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting Id le	fuel delivery	5a Idle stop	
Test Oil tem rev/min 1		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	119,0-121,0 (116,0-124,0)		-	-	100	19,0 - 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 MB 5,7 r 3

En

PES 6 A 90 D 410 RS 2293 Z RSV 350-750 A0B 741 L

supersedes 6.82

2. Edition

company: Daimler-Benz

engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.1 - 2.3)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control roo travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	9,8-9,9	5,0-5,1	0,3(0,45)			
350	6,4-6,6	0,5-1,1	0,2(0,4)			
					•	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx	350	6,5	-	-
20000	x =	2,0				15	100	min.19,0		
approx.	750	00	4				380-4	10 = 2,0		
26 5	750 788-79 820	8,8 6 4,0 0,3-1,7					450	max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.		3a) Fuel delivery characteristics		fuel delivery	5a Idle stop		
Test oil tem rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm	
700	50,0-51,0 (48,0-53,0)	750 *	-	-	100	78,0-88,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 MB 5,7 r 4

2. Edition

En

PES 6 A 90 D 410 RS 2293 RS

RSV 350-750 AOB 741 L

supersedes 82

company:

Daimler-Benz

om 352 A

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2 10-2 30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
700	10,9+0,1	6,3 - 6,5	0,3(0,45			
350	7,9-8,1	1,9 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

rev/min	Control rod travel mm
1	
10	11
-	-
	-

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	(5a) Idle stop	
Test oil tem rev/min 1		Note: changed to rev/min 3	rev/min	cm ³ /10 00 st rokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	63,0-65,0 (61,0-67,0)	750 *	-	-	100	78,0-88,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

41

WPP 001/4 MB 5,7 q 6

2. Edition

En

PES 6 A 90 D 410 RS 2293-1

RSV 350-1400 AOB 745-1L

supersedes 6.82

company Daimler-Benz

OM 352 A 115 kW (156 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25

estoil-150 4115

Port closing at pres	troke	(2,10-2,30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	r::m	cm³/100 strokes	тт
1	2	3	4	2	3	6
1380	11,9+0,	7,6-7,7	0,3(0,45			
350	7,8-8,0	0,9-1,5	0,2(0,4)			
					•	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx.	350	7,4	-	-
approx.	Χ =	4,25				29	100 350	min.19,0 7,8-8,0		
5	10,9 4,0 1700	1420-1430 1510-1540 0,3-1,7					550-6	10= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-k	oad stop	Rotational- speed limitat.			Starting Idle	fuel delivery	Sa Idle stop		
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1380	75,5-76,5 (73,5-78,5)	1420-1430*	600	63,0-66,0 (61,0-68,0)	100	88,0-98,0 bei 16,3 - 16,7 mm RW	_	- .	

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MWM 2,1 b

2. Edition

En

PES 2 A 80 D 320 RS 1337

RSV 300-1000 A7B 505-1R

supersedes.82

company: MWM

engine: D 226-2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	15 - 2,35) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
980	9,7-9,8	4,8-4,9	0,2 (0,35)		
300	7,2-7,4	1,0 - 1,6	0,2 (0,3)			
600	9,7-9,9	C, Sp. 4 u. 5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	•	Control rod travel mm 3	Degree of deflection of control lever	rev/min	Control rod travel mm 6	Degree of deflection of control lever	rev/min	Control rod travel mm 9	rev/min 10	Control rod travel mm
loose	800	0,3 - 1,0	-	-	-	approx	300	5,5	••	-
approx	X =	6,0				27	100 300	min.19,0 5,9-6,1		
66 ⑤	8,7 4,0 1205	1020-1030 1050-1080 0,3-1,7					350-41	0 = 2,0 max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	load stop	6 Rotational- speed limitat.		el delivery practeristics	Starting Idle	fuel delivery	Sa idle stop	
Test oil ten rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
980	48,0- 49,0 (46,5-50,5)	1020-1030*	600	40,5-43,5 (39,0-45,0)	100	88,5-104,5 bei 19,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5.7x4

1. Edition

PES 6 A 90 D 410 RS 2569

RSV 350-1250 AOB 1130-1L

En

supersedes

company: Daimler-Benz

OM 352 engine:

92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40)mm (from BDC) Port closing at prestroke Spring pre-tensioning (torque-control valve) Control rod Fuel delivery Difference Control rod **Fuel delivery** Rotational speed travel cm³/ cm³/100 strokes 100 strokes cm3/100 strokes mm rev/min 10,9+0,1 6,1 - 6,2 0,3(0,45 1250 8,1-8,3 0,8 - 1,4 0,2(0,4)350

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	e rated spe	eed	4 Lower				
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3 - 1,0				approx.	350	8,2	1250	10, +0
200004	x =	5,0				15	100	min. 19	500	11,9+0
approx 51 ⑤	1290-	1300 = 9,9 1450 = 4,0 0,3 - 1,7	,				350	8,1-8,3	1025	11,3+0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.					Sa Idie	e stop
Test oil temp rev/min 1	. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	61,0-62,0 (59,0-64,0)	1290-1300*	500	52,0-55,0 (50,0-57,0)	100	78,0-88,0 bei 16,4- 16,8 mm RW		•

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Checking values in brackets

1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 w 9

1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-1400 AOB 2098 L

supersedes_

company: Daimler-Benz

engine: OM 352

96 kW (131 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,25-2,3 Port closing at prestroke (2,2 = 2

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm e
1	2	3	4	2	3	6
1380	12,4+0,1	6,2 - 6,3	0,3(0,45)			
350	10,0+0,2	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	approx.	350	8,0		12,4-12 13,0-13	
annroy	X =	4,0				k/	100 350	min.19,0 7,9-8,1			
approx.	11,4 4,0 1625	1420-1430 1500-1530 0,3-1,7					500-50				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.			Starting Idle	fuel delivery	Sa Idle	e stop
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	62,0-63,0 (60,0-65,0)	1420-1430*	900	60,5-63,5 (58,5-65,5)	-	•	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MWM 3,1a

1. Edition

En

PES 3 A 80 D 320 RS 1338

RSV 300-1000 A 7 B 505-1R

supersedes _

company: MWM

engine: D 226-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-100 4112

2,2-2,3
Port closing at prestroke (2,25-2,35) mm (from BDC)

•			(2,25-2,35)				
	Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
	1	2	3	4	2	3	6
	980	9,7-9,8	4,8-4,9	0,2(0,35			
	300	7,2-7,4	1,0-1,6	0,2(0,3)			
	ı						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	_	-	-	approx.	300	5,5	-	-
approx.	X = 6	,0				27		min.19,0 5,9-6,1		
66 ⑤	8,7 4,0 1205	1020-1030 1050-1080 0,3-1,7					350-	410=2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		6 Rotational- speed limitat.		3a) Fuel delivery Starting fuel delivery Idle			(5a) ld#	(5a) idle stop	
		Note: changed to rev/min rev/min cm³/1 3 4 5		cm ³ /1000 strokes 5	m ³ /1000 strokes rev/min cm ³ /100		rev/min 8	Control rod travel mm	
980	48,0-49,0 (46,5-50,5)	1020-1030*	600	40,5-43,5 (39,0-45,0)	100	88,5-104,5 bei 19,0-2 mm RW		-	

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

WPP 001/4 MWM 4,1 a

1. Edition

En

PES 4 A 80 D 320 RS 1339

RSV 300-1000 A7B 505-1R

supersedes

companyMWM

engine: D 226-4

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2 - 2,3
Port closing at prestroke (2,15-2,35) mm (from BDC)

		(2,13-2,33)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
980	9,7-9,8	4,8 - 4,9	0,2(0,35)			
300	7,2-7,4	1,0 - 1,6	0,2(0,3)			
	1	1	ļ	1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed .	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1oose	800	0,3-1,0	-	-	-	approx	300	5,5	-	-
approx.	x =	6,0				27	100 300	min.19,0 5,9-6,1		
66 ⑤	8,7 4,0 1205	1020-1030 1050-1080 0,3-1,7					350-41 450			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ed stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	Sa) Idio	stop
Test oil temp rev/min	. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
980	48,0 - 49,0 (46,5 - 50.5	1020-1030*	600	40,5 - 43,5 (39.0 - 45,0)		88,5-104,5 bei 19,0- 21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

WPP 001/4 DAF 8,3 n 1

1. Edition

En

PE 6 A 95 D 410 RS 2575

RSV 250-1200 A5B 2151 L

supersedes _

company: DAF

DH 825 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0 - 2,1 (1,95-2,15) mm (from BDC) Port closing at prestroke

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,4+0,1	7,1 - 7,3	0,3 (0,6)		
250	6,0-6,2	0,7 - 1,1	0,3 (0,5)		
					·	
					,	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9 .	10	11
100se	800	0,3 - 1,0		•	-	approx		5,6	500	10,5+0,1 11,1+0,1
approx	X	5,0				-	250 635-6	6,0-6,2 $95 = 2,0$	000	11,1+0,1 10,7+0,3
58 ⑤	9,4 4,0 1505	1240-1250 1340-1370 0,3-1,7					-	·	940	10,710,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		Rotational-speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	(5a) idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7		Control rod travel mm
1200	70,5-72,5 (68,5-74,5)	1240-1250*	800	72,5-75,5 (70,5-77,5)	100	121,5-131,5 bei 19,5- 21,0 mm RW		

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Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test III.S.

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 8,7 c 3

1. Edition

En

PE 6 A 90 D 410 RS 2124 X

RQ 300/1275 AB 658 DL

supersedes

companyDaimler-Benz

engine: 0M 360

125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{pmatrix} 2.15-2.25 \\ (2.1-2.3) \end{pmatrix}$ mm (from BDC)

Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250		7,7 - 7,8	0,3(0,45)			
300	4,9-5,1	0,9 - 1,5	0,2(0,4)			
					·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che rev/min 1	ck Control rod travel	Full-load s Setting po rev/min 3			rev/min	ldle spec Setting p rev/min 7	Control rod travel		cifications 5 Control rod travel	rev/min	Control rod (3)
700	15,6-16,4	700	16,0	8,3 4,0	1290-1305 1345-1375		5,0	300 350-3	min. 6,5 4,9-5,1 90 = 2,0 max. 1,0	1250 500 850 1040	10,1-10,2 9,8-10,0

Torque-control travel
on flyweight assembly dimension a =

0,4 m

Speed regulation 12,90-1305 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fi Idle spee	uel delivery d 6
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		tev/min	rad travel cm ³ /1000 strokes / mm 7
1250	77,0-78,0 (75,0-80,0)	450	500 800	69,0-72,0 (67,0-74,0) 77,0-80,0 (75,0-82,0)		100	15,3-21,0 mm RW

Checking values in brackets

8.82

BOSCH

WPP 001/4 MB 11,8 a 2 1. Edition

PE 6 P 100 A /20 RS 15

RQ 250/1100 PA 43 DR

company Daimler-Benz OM 355

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Fort closing at prestroke

(2,75-2,95) mm (from BDdbei 9,0 - 12,0 mm RW

Rotational speed rev/min 1	Control red travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,4+0,1	11,6 - 11,8	0,3(0,6)			
250	7,9-8,1	1,8 - 2,4	0,3(0,5)			
		·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG chec	Control rod	Full-load : Setting por rev/min	•	-	rev/min	Idle spec Setting p rev/min 7	Control red travel		cifications Control rod travel mm	Torque o	Control rod (3)
600	15,6-16,4	600	16,0	12,4	1145-1160 1200-1230 0 - 1,0	250	8,0	100 250 410-4	min.9,6 7,9-8,1 50 = 2,0	-	-
	ontrol travelight assembly dime	ension a =	0	mm	Spe	eed regula		145-1	160 min ⁻¹		1 mm less contro rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di governor c Test oil ten	elivery on ontrol lever pp. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel crn ³ /1000 strokes / mm 7	
1100	116,0-118,0 (114,0-120,0)	450	450	104,0-108,0 (102,0-110,0)	100	140,0-160,0	
				•			

Checking values in brackets

Testoil-ISO 41

WPP 001/4 MB 18,3 c

1. Edition

PE 10 P 110 A 320 LS 3818

RQ 300/1150 PA 437-2

supersedes companyDaimler-Benz

engine OM 423

261 kW (355 PS)

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10- 9 - 4 0 -27 -72 -99 -144-171-216-243-288-315° - 0,5° (- 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDCZyl. 10

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod- travel mm 2		Spring pre-tensioning (torque-control valve) mm 6
1150	12,1+0,1	12,6 - 12,8	0,4 (0,8)			
300	8,5-8,7	1,2 - 2,0	0,4 (0,7)			
					·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG chec		Full-load s Setting po			cifications (4)	ldl e spee Setting p			cifications 5	Torque c	Control rod
	travel	rev/min	red travel mm 4	rod travei	rev/min 6	rev/min 7		rev/min 9	tra vel mm 10	rev/min 11	tra vel mm 12
600	13,0-14,0	600	13,5	11,1 4,0 1350	1190-1205 1225-1255 0 - 1,5	300	6,1	300	min.7,7 6,0-6,2 40 = 2,0	600	12,1+0,1 12,5+0,1 12,4+0,2

Torque-control travel

0,2 _{mm}

Speed regulation AT 190 - 1205 min⁻¹

less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor co Test oil tem	elivery on ontrol lever pp. 40°C (104°F)	Control rad stop 3a	Fuel delive	ery characteristics 3b	Starting for ldle spee	Control
1 1	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min 6	ret tret cm ³ /1000 snokes / mm 7
1150	126,0-128,0 (123,0-131,0)	-	600 900	117,0-121,0 (114,0-124,0) 115,0-120,0 (112,0-123,0)	100	140,0-160,0

Checking values in brackets

40

WPP 001/4 MWM 19,9 c

2. Edition

En

Testoil-ISC 4113

(1) PE 6 P 130 A 320 RS 3057 (2) PE 6 P 130 A 300 RS 3056 RSUV 300-750 P 9 A 333/1R

supersede \$82

company MWM - Südbremse engine TBD 601-6 K

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 876 712 (1)

A. Fuel Injection Pump Settings

0 401 816 704 (2)

Porticiosing at prestroke

2 75-2 95

mm (from BDC) at RW = 21.0 nm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	12,0+0,	34,7 - 35,1 (34,4 - 35,4)	0,5 (0,9)			
			Ì			
300	5,3-5,	\$ 4,7 - 5,5	0,8 (1,2)			
	}		1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose		0,3-1,0	-	-	-	approx. 28		4,0	325	12,0+0,1 13,2+0,6
approx.		,75					300	5,3-5,5	450	12,0+0,1
66	11,0	1790-800	4							
(5)	4,0 980	815-845 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	nd stop	6 Rotational- speed limitat.				Starting fuel delivery			5a Idle stop	
•	. 40°C (104°F) cm ³ /1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	-	00 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7 mm	RW	8	9	
Full-lo to engi	ad delivery i ne inspection	s set on the sheet.	engir	e accordning	100	19	,5-21,0			
·	·					-				

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MWM 19,9 e

2. Edition

En

PE 6 P 120 A 320 RS 210 RSUV 300 - 900 P 10 A 330/1R

supersedes 1.82

company MWM - Südbremse

engine D/TD/TBD 601-6

TBD 601-6 S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.25-2.45) mm (from BDC) at RW = 21,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	13,0+0,	$\begin{array}{c} 1 & 26,6 - 27,0 \\ (26,3 - 27,3) \end{array}$	0,5 (ù,9)			
300	5,5-5,		0,8 (1,2			
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lowe	4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800 x	0,3-1,0	-	-	-	approx 29	300	5,1	700 325	13,0+0, 14,2+0,	
approx							100 300	5,5-5,7	450	13,0+0,	
5 (5)	12,0 4,0 1080	940-950 965-995 0,3-1,7		•			315-3	75 = 2,0	mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	d stop	6 Rotational- speed limitat.			Starting Idle	fuel delivery	5a idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to rev/min	rev/min			rev/min cm³/1000 strokes		Control rod travel mm
1	2	3	4 _	5	6	7 min Kw	8	9
Full-l to eng	pad delivery ine inspectio	is set on th n sheet.	e engi	ne accordning	100	19,5-21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MWM 19,9 d

2. Edition

En

PE 6 P 120 A 320 RS 396 Komb.-Nr. 0 401 876 242 RSUV 300-750 P 9 A 333/1 R

RSUV 300-750 P 9 A 3337

supersedes 1.82

company MWM - Südbremse

engine

D, TD, TBD 601-6

TBD 601-6 S

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

700

300

Rotational speed

rev/min

(2,2-2,)

mm (from BDC).

at RW 21.0 mm

~~	(2,10-2,50)	20 KH 21,0 KH							
ontrol rod avel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)				
ım.	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm				
	3	4	2	3	6				
13,0+0,	26,6 - 27,0 (26,3 - 27,3)	0,5(0,9)							
5,5-5,	1 '	1							
	1	l l	1	1	1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_		approx.	l	5,1	700 325	13,0÷0, 14,2+0,
approx.	X =	5,25					100 300	5,5-5,7	450	13,0+0,
70	12,0	790-800	4				315-37	5 =2,0 mr	þ	
5	980	815-845 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	d stop	6 Rotational- speed limitat.		l delivery racteristics	Starting Idle	fuel delivery	(5a) Idle stop	
1 '1		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7 mm RW	8	9
Full-l to eng	oad delivery ine inspectio	is set on th n sheet.	e engi	ne accordning	100	19,5-21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

8 82

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 19.9 b

Edition

(1) PE6P 120 A 320 RS 353 (2) PE6P 120 A 300/3 RS 342 RSUV 300-750 P 9 A 333/1 R supersedes 1.82

En

Kom.-Nr. 0 401 876 215 (1)

0 401 816 053 (2)

D/TD/TBD 601-6

601-6 S

MWM - Südbremse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.25-2.45)

mm (from BDC)

at RW = 21 mm

	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	13,0+0,1	26,6 - 27,0 (26,3 - 27,3)	0,5			
300	5,5-5,7		(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Upper	rated speed		Intermediate rated speed			4 Lower	rated spe	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6		0	9	110	
loose	800	0,3-1,0	-	-	-	approx.	300	5,1	700	13,0-13,
approx.		5,25				29	100 300	5,5-5,7	450 325	13,0-13, 14,2-14,8
70	12,0=7	90-800				Į	2.0=	315-375		
(5)		5-845								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(6) Rotational-Fuel delivery Starting fuel delivery (2) Full-load stop characteristics idle Control rod Test oil temp. 40°C (104°F) travel changed to ... cm³/1000 strokes XXXXXXXXXXXX rev/mm നന cm³/1000 strokes rev/min rev/min mm RW 100 19,5-21,0 Full-Idad delivery is set on the engine according to engine inspection sheet.

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP-001/4 SCA 11,0 u 4

2. Edition

PE 6 P 120 A 720 RS 7001

RSV 350-1100 P 1/481

supersede 5.81 company Scania DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

to FD 052

4,4-4,5

Port closing at prestroke

4.95-5.15)

mm (from BDC)

(4.35-4.55)

•	(7	,,,,,,,,			(, , , , , , , , , , , , , , , , , , ,	~ ,
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	13,2+0,1	23,8 - 24,2	0,5 (0,9			3,3 + 0,1
350	3,9-4,1	1,6 - 2,0	0,5 (0,8			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in _______ in it is a spring tension with a new **Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 3,0 \pm 3,1 mm. B. Governor Settings

Upper	rated speed		Intermediate rated speed			4 Lower	rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 X =	0,3 - 1,0 5,5	-	-	•	approx 2	4	3,5 nin.20,0	-	-
58	12,2 4,0 1350	1140-1150 1195-1225 0,3-1,7					350 415-4	3,9-4,1 75 = 2,0		f

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+o	ad stop	6 Retational- speed limitat.	~ /	delivery gracteristics	Starting Idle	fuel delivery	Sa) idi	e stop
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
1100	238,0-242,0 (235,0-245,0)		600	199,0-205,0 (196,0-208,0)	100	220 - 270 at 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 SCL 9,8 a 1

PE 8 A 95 D 410 RS 2615

RSV 325-1025 A1B 2177 L

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^{\circ} - 0,5^{\circ} (-0,75^{\circ})$

1. Edition

Schlüter SDMT 110/112W8

136 kW (185 PS)

A. Fuel Injection Pump Settings

Port closing at pres	itroke	(1.95-2.25) mm (from BDC) at RW = 9,0-12,0 mm							
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)			
rev/min	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6			
1025	12,7+0,	10,2 - 10,4	0,3 (0,6	þ					
325	8,4-8,6	1,4 - 2,1	0,3 (0,5)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Tor	lorenco sup
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-		-	approx	325	8,0	1025	12,7+0,
approx.	x =	5,0				27	100	min.19,5		13,1+0,
57 [°]	11,7 4,0 1330	1065-1075 1165-1195 0,3-1,7					325 560-6	8,4-8,6 20 = 2,0	795	12,8+0,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+oa	d stop	6 Rotational- speed limital.		delivery racteristics	Starting Idle	fuel delivery	Sa) lose	e stop
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	r ev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1025	0,7 bar 102,5-104,5 (100,5-106,5)	1065-1075*	LDA 700 LDA 500	0,7 bar 103,5-106,5 (101,5-108,5) 0 bar 73,5-76,6 (71,5-78,5)	100	171.5-181,5 at 19,5- 21,0 mm RW	-	-

Checking values in brackets

1 mm less control rod travel than col. 2

Testate =

500

rev/min decreasing pressure – in har gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8AR\$2615	0,32		12,9 - 13,0
with A1B2177L		0,70	13,1 - 13,2
•		0	12,9 - 12,1
· · · · · · · · · · · · · · · · · · ·		0,18	12,1 - 12,3
Annual Control of the		Language and the second	

Notes

(1) when n =

revimin and gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at: 0,4 - 0,5 bar Unlocking at: 0.15 - 0.25 bar

WPP 001/4 SCA 11,0 u

3. Edition

PE 6 P 120 A 720 RS 7001

RQV 200-1000 PA 539

5.81 supersedes company

engine

Scania DS 11

est specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

to FD 052

4,40-4,50 (4,35-4,55)

A. Fuel Injection Pump Settings

mm (from 80C) a+ RH = 9.0-12.0 mm 14 95-5 151

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 225	13,2+0,1 4,2-4,4		0,5(0,9) 0,3(0,6)			3,3 ± 0,1 ** (3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in the initial spring tension with a new xx Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 3,0 ± 3,1 mm.

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed .	l.ower rated	speed		Chichica	deeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travei	SHORTY S	1
lever	mm	rev/min 2a	iever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	3	10	11
max.	1000	15,2-17,8	-	•,	_	approx.	100	min. 5,8	150	0,5-0,8
	12,2	1040-1050					225	4,2-4,4	430	3,0-3,5
approx.	4,0	1145-1175				255-365			720	5,0-5,2
	1300	0 - 1,0				3a)			1000	7,7

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2				Starting Idle switching		Torque- travel	control 5	
rev/min	cm³/1000 strokes .	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
·	•		-	3	6	7	8	9
LDA	0,7 bar	1040-1050*	LDA	0,7 bar	100	220,0-270,0	-	-
700	222,0-224,0 (219,0-227,0)		1000 LDA 500	236,0-244,0 (233,0-247,0 0 bar 161,0-165,0 (158,0-168,0)	at 20,0 - 21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 7001	0,44		12,8 - 12,9
with PA 539		0,70	13,2 - 13,3
:		0	11,6 - 11,7
		0,28	12,0 - 12,2
:			
+			

Notes

(1) when a =

rev/mm and gauge pressure = bar (= maximum full-load control rod travel)

WPP 001/4 SCA 14,2 a 3

2. Edition

Testoil-ISO 4113

(0)

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547 1-2-7-3-4-5-6-8 je 45° + 0,5° (+ 0,75°)

supersede 82 company Scania engine DS 14

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
from FD 141 5,0 - 5,1
Port closing at prestroke (4,95 - 5,15) mm

to FD 052 4,4 - 4,5 mm (from 8DC) (4,35 - 4,55)

Rotational speed revirnin	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 225	13,2+0,1 4,7-4,9		0,5(0,9) 0,3(0,6)			$3,3 \pm 0,1$ $(3,0 - 3,5)$

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediat	e rated sp	eed	Lower rated	speed		Sliding	sieeve travel
deflection	rev/min Control	Control rod (18	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1 ①
1.7	rod travel mm	rev/min (2)	lever	rev/min	mm 4	lever	rev/min	mm (3 rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1000	15,2-17,	3 -	-	-	approx.	100	min. 6	,4 200	1,0-1,2
approx.	12,2	1040-105	וכ			10	225	4,7-4,	9 470	3,3-3,8
60	4,0	1140-117	ס	Ì		255-365			730	5,1-5,3
ĺ	1300	0 - 1,)			(3a)	1		1000	7,7
L			<u>. </u>	<u> </u>	<u> </u>		<u></u>			L

Torque control travel a =

m

C. Settings for Fuel Injection Pump with Fitted Governor

Fulf-load d Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed		el delivery characteristics (5a) th idle speed (5b)		fuel delivery 8	Torque- travel	ontrol 5
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	trave l mm
1	2	3	4	5	в	7	8	9
LDA	0,7 bar	1040-1050*	LDA	0,7 bar	100	220,0-270,0	-	-
700	192,0-194,0 (189,0-197,0)	·	1000 LDA 500	192,0-200,0 (190,0-202,0) 0 bar 143,0-147,0 (140,0-150,0)		at 20,0-21, `mm RW	0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test atn =

rev/min decreasing pressure - in bar gauge pressure

Gauge pressure = bar Gauge pressure = bar mm (1) LS 7002 RQVPA 547 0 bar 11,3 - 11,4 12,0 - 12,2 12,5 - 12,6	Pump/governor	Setting	Measurement	diminution Control rod 東東東文文文 Gifference
RQVPA 547 0 bar 11,3 - 11,4 0,29 bar 12,0 - 12,2		Gauge pressure = bar		XXXXXXX
		0,7 bar	0,29 bar	11,3 - 11,4 12,0 - 12,2

Notes

(1) when n @

rev/min and gauge pressure =

bar (r maximum fell-load control rod travel)

Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 3,0 \pm 3,1 mm.

Test Specifications Fuel Injection Pumps 1 NPP 001/4 VOL 12,0 d 2 and Governors

1. Edition

PE 6 P 120 A 320 RS 3050

RQV 250-1025 PA 611 -

supersedes companW01v0 engine TD 120 FC

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings 2,4 - 2,5

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,1+0,1	23,7 - 24,0	0,5(0,9)			
250	3,8-4,0	1,8 - 2,4	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 411

Upper rated s	peed			Intermediate	rated sp	ed		Lower rated	speed	1		Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	(1 <u>a</u>)	Degree of deflection		Control ro travel	od	Degree of deflection of control		Control r	od	9	1
1	rod travel mm	rev/min	(2a)	of control lever	rev/min	mm	4	lever	rev/min	mm	3	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1080	15,2-17	8	-		-		approx 8	100 250	min. 3,8-		200 475	0,6-0,9 3,9-4,5
approx.	12,1	1085-109 1150-118								360 =	•	670- 940	
1 04 1	1300	0 - 1,										1025	7,5
								(3a)					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes		Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	peed 50 cm³/1000 strokes	ldle switchir	\circ	Torque- travel	Control cod
1	2	3	4	5	6	7	8	9
LDA 700	1,2 bar 237,0-240,0 (234,0-243,0)	1085-1095*	LDA 700	0 bar 141,0-145,0 (138,0-148,0		20,0-21,0 mm RW	-	.

Checking values in brackets

1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6PRS3050		1,20	13,1 - 13,2
withPA611	1.67	0	9,3 - 9,4
: 	1,67	0,3	12,1 - 12,2 10,5 - 10,7
:		·	
· 			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-foad control rod travel)

WPP 001/4 SCA 14,2 a 2

2. Edition

PE 8 P 120 A 920/4 LS 7002

ROV 200-950 PA 547

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} + 0.5^{\circ} (-0.75^{\circ})$

supersede 5.82 company: Saab-Scania DSC 1401

Values only apply to test

nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

LKW T 142

A. Fuel Injection Pump Settings

to FD 052 4,4 - 4,5 mm 5,0 - 5,1mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strakes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,8+0,1	20,2 - 20,4	0,5 (0,9)			
225	4,4-4,6	0,8 - 1,2	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	· · · · ·	rev/min	i i
1	2	3	4	5	16	7	8	9	10	11
max.	1070	15,2-17,8	-	-	-	approx	100 225	min.6,0 4,4-4,6	150 420	0,5-0,8 2,9-3,4
approx.	12,8 4,0 1250	990-1000 1115-1145 0 - 1,0				9	l	410 = 2,0		4,7-4,9 7,1
						3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten	rod stop temp. 40°C (104°F) 2 limitation intermediate speed			rery characteristics (5a)	Starting Idle switchir	•	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 202,0-204,0 (199,0-207,0)	990-1000*	LDA 950 LDA 500	0,7 bar 206,0-214,0 (204,0-216,0) 0 bar 166,0-170,0 (163,0-173,0)		230,0-280,0 bei 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE8PLS7002 withPA 547	0,38	0,70 0 0,26	13,4 - 13,5 13,8 - 13,9 12,4 - 12,5 12,6 - 12,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

C15

En Cas-

WPP 001/4 RVI 8,8 b 2

1. Edition

PES 6 P 120 A 320 RS 417 RQV 300-1150 PA 527-1K

supersede3 companyRVI

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

companyRVI engine MIDR 062030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes	mm 2	crn ³ /100 strokes	mm 6
1150	8,5-8,6	14,8-15,0	0,5 (0,9)			
300	4,1-4,3	1,8-2,4	0,5 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	ed		Lower rated	speed			Slidings	leeve travel
deflection	rev/min Control rod travel	mm	1a)	Degree of deflection of control		Control ro travel	d	Degree of deflection of control		Control travel	rod	Silding 3	1
lever	шш	rev/min (2a)	lever	rev/min	шш	(4)	lever	rev/min	mm	(3)	rev/min	mm ,
1	2	3		4	5	6		7	8	9		10	11
max.	1200	15,2-17,	8	٠.	-	-		approx.	100	min.	5,7	250	0,4-0,7
approx.	7,5	1205-121	5					10	300	4,1-4	1,3	550	3,6-3,7
58	4,0	1275-130	5									850	5,1-5,2
	1450	0 - 1,	0					330-445 3				1150	7,5

Torque control travel a = _ m

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed rev/min 4a	Fuel delivingh idle s	very characteristics 5a poeed 5b cm³/1000 strokes	Starting Idle switchin	, 0	Torque- travel	Control cod travel
1	2	3	4	5	в	7	8	9
1150	147,5-149,5 (144,5-152,5)	1205-1215*	750 500	132,0-138,0 (129,0-141,0 80,0-86,0 (77,0-89,0)) 300	130,0-150,0 18,0-24,0 100-220 (80-240)	350 750	8,5+0,1 7,0+0,4 7,7+0,2 7,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11,0 p

1. Edition

PE 6 P 120 A 320 LS 3823

RQ 300/1150 PA 656

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 supersedes company

Daimler-Benz

engine

OM 421 LA 184 kW (250 PS)

Euclid

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0 - 4,1 Port closing at prestroke mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm ³ /100 strokes	100 strokes	mm ·	cm ³ /100 strokes	mm
2	3	4	2	3	6
11,1+0,2	15,5-15,7	0,5(0,9)			
5,0-5,2	1,4-2,2	0,8(1,2)			
	:				
		;			
	travel mm 2 11,1+0,2	travel mm cm ⁻ /100 strokes 2 3 11,1+0,2 15,5-15,7	travel mm cm³/100 strokes 2 3 cm³/ 100 strokes 4 11,1+0,2 15,5-15,7 0,5(0,9)	travel travel travel travel travel travel travel travel travel 2 11,1+0,2 15,5-15,7 0,5(0,9)	travel travel travel travel travel travel travel travel

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Checkin	g of slider	Full-load :	Hoad speed regulation				ed regula	tion		Torque control	
PRG che	- (1)	Setting po		-	cifications (4)	Setting p	oint	Test spe	cifications (5)	Ì	(3)
rev/min	Control rod travel mm 2	rev/min	Control rod travel mm 4	Control rod travei mm 5	rev/min	rev/min	Contral rod travel mm 8	rev/min	Control rod travel mm	rev/min	travel
	10 0 00 0	500	20.0		5105 1010	-					12
600	19,2-20,8	600	20,0	10,1	1195-1210	300	5,0	100	min. 6,5	-	-
VH =	max. 46°			4,0	1250-1280			300	4,9-5,1		
								350-	90= 2,0		
L			<u> </u>								

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics (3b)	Starting for	, —
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 stroke s 5	rev/min 6	Control rad travel cm ³ /1900 strokes / mm
LDA 1150	0,7 bar 155,0-157,0 (152,0-160,0)	-	LDA 600 LDA 500	0,7 bar 155,0-161,0 (152,0-164,0) 0 bar 137,0-139,0 (134,0-142,0)	100	150,0-170,0

Checking values in brackets

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

300											
Pump/governor	Setting	Measurement	diminution Control rod travel- difference								
	Gauge pressure : bar	Gauge pressure = bar	mm (1)								
PE 6 PLS 3823	0,25		10,9 - 11,0								
withPA 656		0,70	11,1 - 11,2								
:		0	10,5 - 10,6								
·		0,16	10,6 - 10,8								
:											
:											

Notes

(1) when n =

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

O

2

Test Specifications Fuel Injection Pumps 2 and Governors

4

WPP 001/4 MAN 11,1 r 3

1. Edition

<u>En</u>

PES 6 P 120 A 720 LS 388

RQ 250/1050 PA 452

supersedes

company MAN

engine

D 2566 MKF 235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC

		Z.95-3.151				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	13,1+0,1	22,2-22,6	0,5 (0,9)		
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider	1 '	Full-load speed regulation Idle speed regulation Setting point Test specifications 4 Setting point Test specifications 5			
PRG check Control rod travel rev/min mm	Setting point Control rev/min mm	Test specifications (4) Control rod travel mm rev/min	Control rod travel	Control rod travel mm	Control rod travel mm
600 19,2-20,8	600 20,0	10,3 1095-1110 4,0 1175-1205 1350 0 - 1,0	250 6,4 100 250 340	10 min./,9 6,3-6,5 -380=2,0	11 12 1050 11,3-11,4 750 13,1-13,2 1000 11,8-12,0

Torque-control travel on f(s) veight assembly dimension a=0,7

mm

Speed regulation: At 95-1110 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting find the speed	uel delivery
rev/min 1	cm ³ /-1000 stroke s 2	rev/min 3 .	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
LDA 750 LDA 1050	1,0 bar 222,0-226,0 (219,0-229,0) 1,0 bar 184,0-190,0 (181,0-193,0)	-	LDA 650 LDA 500	1,0 bar 214,0-220,0 (211,0-223,0) 0 bar 107,0-111,0 (104,0-114,0)	100	225,0-245,0

Checking values in brackets

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P LS 388 with RQPA 452	0,34	1,0 0 0,61	13,1-13,2 9,4-9,5 10,5-10,6 12,1-12,4
·			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 3,8 n 7 2. Edition .

Er

PES 4 A 90 D 410 RS 2570

RSV 350-1200 A 2 B 1147 L

supersedes8.81

company Daimler-Benz om 314 A

63 kW (86 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,25-2,35 (2,2-2,4)

mm (from BDC)

	· _ ((4,4 -4,4)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1200	11,8+0,	6,4-6,5	0,2(0,25)			·
350	8,9-9,	0,7 - 1,3	0,2(0,25)			
		<u> </u>				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	rated speed		Intermediate	Intermediate rated speed			rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx	350	7,5	1200	11,8+0,
approx	x =	5,75				25	350	7,9-8,1	900 600	12,2+0, 12,6+0,
52 5	10,5 4,0 1475	1240-1250 1320-1350 0,3-1,7					605-6	65=2,0mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting fuel delivery		5a Idie stop	
Test oil temp rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	63,5 - 64,5 (61,5 - 66,5)	1240-1250 *	600	57,0-59,0 (55,0 - 61,0)	100	80,0-90,0 at 16,8- 17,2 mm R	ļ	-

Checking values in brackets

* 1 mm less control rod travel than cot. 2

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 2,9 b

2. Edition

<u>En</u>

PES 3 A 90 D 320 RS 2626

RSV 300-1075 A 1 B 2146 R

supersedes 10.81 Eicher

company engine

EDL 3-5 49 kW (67 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closes pal Grestrake

(2,15-2,35)

mm (from BDC)

Rotational	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cni ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1075	12,4+0,1	8,3 - 8,4	0,2(0,45			
300	6,9-7,1	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	Upper rated speed			rated spe	ed 4 Lower rated speed			ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2 🗈	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx	300	6,5	1075	12,4+0,1
approx	X =	5,0				27	100 300	min.19,0 6,9-7,1		12,8+0,2 13,4+0,1
60 5	11,4 4,0 1330	1115-1125 1160-1190 0,3 - 1,7					385-4	45 = 2,0	nm	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.	Rotational- speed limitat. 3a Fuel delivery characteristics		Starting fuel delivery		5a) Idle stup	
Test oil temp rev/min 1	cm³/1000 strokes	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	mm RW cananananananananananananananananananan	rev/min 8	Control rod travel mm
1075	83,0 - 84,0 (81,0 - 86,0)	1115-1125*	500	83,0 - 86,0 (81,0 - 88,0)	100	19,0-21,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 K 2

1. Edition

En

PE 6 P 120 A 320 RS 372 - 1 y RSV 250-1100 P 5/458 R

supersedes

company.

engine

DAF DKX 1160

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2.75-2.95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /1 00 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
850	11,4+0,1	20,4 - 20,8	0,5 (0,9			
250	6,2-6,4	1,1 - 1,5	0,8 (1,2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm 3	Intermediate Degree of deflection of control lever 4	rated spe rev/min 5	ed Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	(3) Tor rev/min 10	que control Control rod travel mm
loose	800	0,3 - 1,0	-	<u> </u>	_	approx	250	5,8	400	11,6+0,
approx	x =	5,0				24	100	min.19,5	300	11,8+0,
54 (5)	10,4 4,0 1425	1140-1150 1265-1295 0,3-1,7			·		250 620-6	6,2-6,4 80 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.	Kody , co,		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 850	0,7 bar 204,0-208,0 (201,0-211,0		LDA 600	0 bar 139,0-143,0 (136,0-146,0	1	315,0-355,0 at 19,5 - 21,0 mm RV		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

000					
Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
PE 6 PRS 372-1y withP5/458 R	0,37	0,70 0 0,30	11,0-11,1 11,4-11,5 10,0-10,1 10,4-10,6		
		·	•		

Notes

(1) when n =

rev/min and gauge pressure =

bar (> maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 d

2. Edition

En

PES 6 A 90 D 210 RS 2628

RSV 325-1200 AOB 2140 L

supersedes 5.82

company: Ford

engine:

Dover 363 T/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

At port closing the locating pin must engage mm (from BDC)in the slot of the pointer.

Rotational speed	Control rod travel	2,65-2,85) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2 _	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1175	11,5+0,1	8,4 - 8,5	0,3(0,45)			
350	5,1-5,3	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate				rated spe	ed Control rod		que control Control rod
Degree of deflection	!	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		travel		travel
of control lever	rev/min	man	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	_	-	approx	350	4,7	_	-
approx	X =	4,0				38	100 350	min.19,0 5,1-5,3		
67 (5)		1240-1250 11375-1405	' !				490-5 625	50= 2,0 max. 1,0		
	4,0 1540	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	(5a) Idie	stop
Test oil temp rev/min 1	cm ³ /1000 strokes	Note. changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1175	0,7 bar 835-84,5 (81,5-86,5)	1240-1250 *	LDA 500	0 bar 49,0 - 51,0 47,0 - 53,0)	1	76,0 - 90,0 at 19,0-21,0 mm [:] RW		-

Checking values in brackets

1 mm less control rod travel than col. 2

Test at n =

rev/min decreasing pressure - in bar gauge pressure

1175			· · · · · · · · · · · · · · · · · · ·
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PES 6 A RS 2628 with 40B 2140 L	0,7	0 0,48 0,30	11,5 - 11,6 10,1 - 10,2 11,1 - 11,2 10,4 - 10,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 £

1. Edition

RSV 350-1300 AOB 2142 L

supersedes =

company: Ford

engine

Dover 363

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 6 A 90 D 210 RS 2629

At port closing the locating pin must engage

mm (from BDC) in the slot of the pointer. Port closing at prestroke (2.65-2.85)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
2	3	4	2	3	6
11,7+0,1	5,9-6,0	0,3(0,45)			
7,2-7,4	0,7 - 1,3	0,2(0,4)			
				·	
	travel mm 2 11,7+0,1	mm cm³/100 strokes 2 3	travel mm cm³/100 strokes cm³/ 2 3 4 11,7+0,1 5,9-6,0 0,3(0,45)	travel mm cm³/100 strokes cm³/ 100 strokes mm 2 3 4 2 11,7+0,1 5,9-6,0 0,3(0,45)	travel travel travel travel cm ³ /100 strokes 2 3 4 2 3 11,7+0,1 5,9-6,0 0,3(0,45)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/m:n	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1oose	800	0,3 - 1,0	_	-	-	approx	350	6,8	1250	11,7+0,1
approx	X =	717				40	100 350	min.19,0 7,2-7,4	700	11,9+0,1
71		1370-1380	•				1	40 = 2,0		
5	4,0 1680	1515-1545 0,3-1,7					700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat.		el delivery iracteristics	Starting Idle	fuel delivery	(5a) idle stop	
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min cm³/1000 strokes		rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm 9
1250	58,5-59,5 (5 6,5-61,5)	1370-1380 *	1.000	51,0 - 55,0 (49,0 - 57,0)	100	76,0-90,0 at 19,0- 21,0 mm RW	_	-

Checking values in brackets

1 mm less control rod travel than col. 2

<u>(A)</u>

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 FOR 5,9 f 1

En

1. Edition

PES 6 A 90 D 210 RS 2629

RSV 350-1300 A 0 B 2138 L

supersedes 🕳

company Ford

engine 380

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

stoil-ISO 4113

A. Fuel Injection Pump Settings

At port closing the locating pin must engage

mm (from BDC) in the slot of the pointer.

ort closing at pres	noke	(2,65-2,85)	mim (irom boc)	in the s	lot of the po	inter.
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	шш	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	12,9+0,	7,2-7,3	0,3(0,45)		
350	6,4-6,	0,9-1,3	0,2(0,4)			*

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	eed	3 Tor	que control
Degree of deflection of control lever	rev/m:n	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/m:n	Control rod travel	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx	350	6,0	-	-
	X =	2,75				34	100	min.19,0		
approx 68 5	11,9 4,0 1670	1365-1375 1505-1535 0,3-1,7					350 515-5 650	6,4-6,6 75= 2,0 max.1.0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	5a idle stop	
Test oil t en rev/min 1	est oil temp. 40°C (104°F) changed to rev/min 2 Note: changed to rev/min 3		rev/min cm³/1000 strokes		rev/min cm³/1000 stroke: 6 7		rev/min 8	Control rod tra vel mm
1250	72,0-73,0 (70,0-75,0)	1365-1375*	900 600	62,5-66,5 (60,5-68,5) 51,0-57,0 (49,0-59,0)	100	76.0-90,0 at 19,0 - 21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than coi 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001 STE 10,0 d 1

2. Edition

6 P 110 A 320 RS 15/ KQV 250-550/1150 PA 140 R

superasdes 5.81 7 FA 235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $_{\text{mm (from BDC)}}$ at $_{\text{RW}} = 9,0 - 12,0 \text{ mm}$

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1153	12,7	17,7 - 17,9	0,4(0,8)		-	
250	5,9-6,1	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed	Lower rated	speed	1	Sliding sl	eeve travel
Degree of deflection	rev/min Control rod travel	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/mi/a 8	Control rod travel mm 3	rev/min 10	(1) mm 11
	1150	15,2-17	,8	ca.48	4,0	625-655	approx.		min.7,5 5,9-6,1	250 650	0,9-1,0 7,4-8,5
approx. 66	, -	1190-120 1245-127 0 - 1	75				(3a)	390-4	150 = 2,0	1200	8,9

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (20) limitation intermediate speed	Fuel deliv high idle s	ery characteristics 5e peed 50	Starting I Idle switchin		Torque- travel	Control rod travel	
	•	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	18v/min 8	mm 9	
1 10A 1150	0,9 bar 177,0 - 179,0 174,0 - 182,0)	1	LDA 1150	0 bar 133,0-137,0 130,0-140,0)	100	190 - 210	-	-	

Checking values in brackets

1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure XXXXXX

	XXXXXX		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
157 with 140 R	0,51	0,90 0,40 0	12,7 - 12,8 12,2 - 12,3 11,3 - 11,5 11,0 - 11,1

Notes

(1) when n =

rev/min and gauge pressure

bar (: maximum full load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 x 1 4. Edition

Eη

PES 6 A 90 D 410 RS 2293

ROV 300-1400 AB 1138 L

companyDaimler-Benz engine: OM 352 A 124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pre	SUCKO	(2,1-2,3)	mm (from BOC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			
					•	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stiding s	Sliding sleeve travel	
	rev/min Control rod travel	Control rod travel	of control		Control rod travel	Degree of deflection of control		Control rod travel		0	
lever	шш	rev/min (2a) lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm .	
1	2	3	4	5	6	<u> </u>	8	9	10	11	
max.	1500	16,0-19,4	-	-	-	approx.			250 600	0,9-1,1 3,1-3,4	
										5,5-5,7	
approx.	10,3	1435-144! 1550-1580				350-475			1400	8,2	
	1650	0 - 1,0)			3					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (2b) timitation intermediate speed	high idle speed (a)		Starting Idle switchir	. 0	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1 _	2	3	4	5	6	7	8	9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

1 375

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2293	0,7		11,3 - 11,4
withAB 1138 L		0	11,0 - 11,1
• .		0,28	11,1 - 11,2

Notes

(!) when h

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

stoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 UNI 9, 6 a
2. Edition

En'

PES 6 P 110 A 720 RS 3105

ROV 275-1150 PA 642

supersedes1.82

company: IVECO-UNIC

engine: 8220-02

176 kW (240 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.15-3.35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,7 - 12,9	0,4(0,8)			
275	5,5-5,7	1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control rod travel	Control rod travel mm		Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever 1	mm 2	rev/min 3	(28)	lever	rev/min 5	mm (4) 6	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11
max.	1190	15,2-17	نَ	-	-	-	approx		min.7,1 5,5-5,7		0,4-0,7 3,5-3,9
approx.	11,0 4,0 1450	1190-12 1285-13 0 - 1,	15				280-375		J#J-J#1		5,3-5,5 8,0
							3.0				

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2				Fuel deliv high idle s	ery characteristics (5e) peed (50)	Starting Idle switching	<u> </u>	Torque- travei	control 5
rev/mus	cm³/1000 strokes	rev/min 40 rev/m		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3		4	5	6	7	8	9
LDA	0,7 bar	1190-1200	*	LDA	0 bar	100	170,0-190,0	-	-
1150	127,0 - 129,0 (1240 - 132,0			400	81,0 - 83,0 (78,0 - 86,0)				·

Checking values in brackets

*1 mm less control rod travel than col. 2 9.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PRS3105 with PA 642	0,19	0,7 0 0,14	11,5-11,6 12,0-12,1 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum fuli-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 x

5. Edition

PES 6 A 90 D 410 RS 2293

①

RQV 300-1400 AB 1140 L RQV 300-1400 AB 1141 L RQV 300-1400 AB 1142 L supersede6.82 company:Daimler-Benz engine: OM 352 A 124.0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2,10-2,30)	mm (from BDC)								
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)					
	2	3	1	2	3	6					
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)								
300	7,6-7,8	0,9 - 1,5	0,2(0,4)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. AB 1140 L, .. AB 1141 L, .. AB 1142 L

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	travei V	1a 2a 2a	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 1
1	2	3		4	5	6	7	8	9	10	11
max. approx. 61	9,8 4,0 1650	16,0-19, 1435-144 1550-158 0 - 1,	.5 10	-	-	350-4	approx. 15 75	100 300	min.9,2 7,6-7,8	600	0,9-1,1 3,1-3,4 5,3-5,5 8,2
							(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter			Fuel deliv high idle s	peed 5b	Starting Idle switchir	. 0	Torque- travei	Control rod	
rev/min	cm ³ /1000 strokes	rev/min 4a)	rev/min	cm ³ /1000 strokes	rev/min	rev/min cm³/1000 strokes		travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (5 4, 0-6 0, 0)	100	14,3-14,7 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

1375

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6ARS2293 AB1140L withAB1141L	0,7	0	11,3 - 11,4 11,0 - 11,1
AB1142L		0,28	11,1 - 11,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

J. J. Jack

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4

Edition

PE 6 P 120 A 320 RS 363

RQV 200-1000 PA 391 R

supersode 1.80 companAEC engine TL 12/41

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,4 = 3,5 3,35= 3,55)	mm (from BDC)			
Rotútional speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve)
1000	13,6+0,1	23,4-23,8	,5 (0,8)			
200	7,1-7,3	2,5-3,1	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stiere	
Degree of deflection of control	rev/min Control rod travel	Control rod (1a) travel	Degree of deffection of control		Control rod travel	Degree of deflection of control		Control rod travel	Silding s	leeve travel
lever	mm	rev/min (2a)	lever	LGA\WIU	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	15,2-17,8	-	-	-	approx.		min. 8,8		0,6-0,8
approx.		1040-1050 1150-1180 0 - 1,0				25	1	7,1-7,3 50 = 2,0	1	3,8-4,0 5,2-5,4 7,5
	2550	,0				3a)				

Torque controi travei a =

mat

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed 20 firmitation intermediate speed	Fuel delin high idle s	very characteristics (5a)	Starting Idle switchir	fuel delivery 6	Torque- travel	control 5
rev/min 1	cm³/1000 strokes	rev/min 48	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1 000 strokes 7	rev/min 8	travel mm 9
LDA 1000	0,9 bar 234,0-238,0 (231,0-241,0)	1040-1050*	LDA 700 LDA 500	0,9 bar 199,0-205,0 (196,0-208,0) 0 bar 141,0-145,0 (138,0-148,0)	100	280,0-320,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.82

BOSCH

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1) .
PE6PRS363			0,9	13,6 - 13,7
withPA391R			0	11,8 - 11,9
	0,52			13,2 - 13,3
: :			0,45	12,4 - 12,6

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 v 8

3. Edition

Festoil-ISO 4113

①

PES 6 A 90 D 410 RS 2596 ROV 300-1400 AB 1151 L

supersedes 10.81

company: Daimler-Benz

engine: OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	strok e	1 95-2 15)	mm (from BDC)			
Rotational speed rev/min 1	Control red travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5÷0,1	7,7 - 7,8	0,3(0,45)			
300 600 450	7,9-8,1 11,5+0,1 10,2+0,1		0,2(0,4) 0,4(0,55) 0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate rated speed			Lower rated speed				Sliding sleeve travel		
deflection	rev/min Control	Control rod travel	1a	Degree of deflection		Control r travel	od	Degree of deflection		Control travel	rod		•
of control lever	rod travel mm	rev/min	28	of control lever	rev/min	mm	•	of control lever	rev/min	mm	3	rev/min	mm
1	2	3		4	5	6		<u> </u>	8	9		10	11
max.	1500	15,2-17	, 8	-	-	-		approx. 24	100 300	min. 7,9-		250 630	0,7-0,9 3,8-3,9
approx. 61	10,5 4,0 1700	1440-145 1560-159 0-1,0	0					350- 500 (3a)	-			1020 1400	5,3-5,4 7,7

Torque control travel a =

നന

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (154°F) (2)		Rotational-speed 20 limitation intermediate speed			Starting Idle switchir		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min cm³/1000 strokes r		rev/min cm³/1000 strokes		rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1400	0,7 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450*	LDA 600 LDA 450	0,7 bar 63,0 - 65,0 (61,0 - 67,0) 0 bar 42,0 - 44,0 (40,0 - 46,0)	100	73,0 - 8 3, 0 bei 14,8- 15,2 mm RW	-	-

Checking values in brackets

3,82

^{* 1} mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2596		0,70	11,5 - 11,6
with AB 1151 L		0	10,2 - 10,3
• •.	0,29	0,18	11,1 - 11,2 10,6 - 10,8
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 0MB 8,1 b

1. Edition

En

PES 6 A 90 D 410 RS 2502

RQV 425-1100 AB 1153 L

supersedes

CompanyOM

engine: 8365.05.520

66101150 at 13

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	itroke	12:10-2:30T	(2.10-2.30)						
Rotational speed rev/min	Centrol rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1100	11,9+0,1	7,8 - 7,9	0,3(0,45						
425	8,0-8,2	0,9 - 1,5	0,2(0,4)						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	4	Stiding s	leeve travel
	rev/min Control rod travel	Control rod (a) travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15,2-17,8	-	-	-	approx. 16		min.9,5 8,0-8,2	400 630	0,8-1,0 4,3-4,5
approx 65		1140-1150 1220-1250 0 - 1,0					ı	max.1,0	870 1100	5,8-6,0 8,0
						3a			<u> </u>	

Torque control travel a = 0,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2 rev/min cm³/1000 strokes		Rotational-speed (2b) limitation intermediate speed rev/min	high idle s	cm³/1000 strokes	idle switchir rev/min	. •	Torque- travel rev/min	Control 5 Control rod travel mm
1100	77,5-78,5 (75,5-80,5)	1140-1150*	650	75,0-78,0 (73,0-80,0)	100	128.0-148,0 at 18,2 - 18,6 mm RW	1100 500 760 880	11,9+0,1 12,2+0,1 12,1+0,2 11,9+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 FIA 13,8 a 3

3. Edition

PE 6 P 120 A 720 RS 167 Z

ROV 225-1100 PA 177 R

supersede2.81
company: Fiat
engine: 8210.02
154,5 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	2,00-2,10 Fual delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,3	17,5 - 17,9	0,5(0,9)		·	
	+0,1					
225	7,5-7,7	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	p e ed			Intermediate	rated spe	eed	Lower rated	speed	Sliding s	leeve travel	
deflection	rev/min Control	travei	12	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
	rod travel mm	rev/min ((2a)	lever	rev/min	mm (4	lever	rev/min	mm (3)	rev/min	mm
1	2	3	<u> </u>	4	5	e	7	8	9	10	11
max.	1100	15,2-17	,8	-		_	approx	100	min.9,0	225	0,9-1,0
							13	225	7,5-7,7	400	2,4-2,6 8,4
approx.	9,3 4,0	1190-12	20				285-400				0 9 4
62	1350	0,1	,0		l		(3a)			<u> </u>	<u> </u>

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten	stop np. 40°C (104°F) 2	Rotational-speed (2b) Fuel delivery characters high idle speed (5b) intermediate speed rev/min cm³/1000 stro			idle switchir		Torque- travel	Control 5 Control rod travel
1	2	3	4	5	6		8	9
1100	175, 0- 179, 0 (172, 0- 182, 0)	1140-1150*			100 225	min. 16 mm RW 17,0-23,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

restoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 FIA 13,8 c 1

2. Edition

......

PE 6 P 120 A 720 RS 214 Z

ROV 425-1050 PA 438 R

superseds 81 company 1, ic. IVECO 8215.02.542 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (1,95-2,15)

Port closing at pres	troke	2.00-2.10	mm (from BDC)			
	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strckes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	9,8-9,9	17,2-17,6	0,5(0,9)			
425	6,0-6,2	1,7 - 2,3	0,8(1,2)			·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed	1	Sliding s	leeve travel
deflection	rev/min Control	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		ı O
1.	rod travel	rev/min (2a	lever	rev/min	mm (4)	lever	rev/min	mm (3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max. approx.	1130 8,8 4,0 1350	15,2-17, 1090-1100 1175-1205 0 - 1,0				approx. 18 430-525	425	min 7,6 6,0-6,2	400 620 830 1050	0,2-0,6 4,1-4,9 6,0-6,2 7,7
						(3e)				

Torque control travel a =

ពាភា

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo	stop	limitation		very characteristics (5a)	Idle)	Torque- travel	control 5
rest oil terr	p 40°C (104°F) (2) cm³/1000 strokes	rev/min 4a				rev/min cm³/1000 strakes		Control rod travel mm
1	2	3	4	5	6	7	8	9
1050	172,0-176,0 (169,0-179,0)	1090-1100*			100	19,5-21,0 mm RW		
					425	17,0-23,0 Electromagne	t 24V	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 12,7 p

1. Edition

PE 8 A 95 D 410 LS 2608

ROV 300-1100 AB 1126 L

Testoil-ISO 4113

133 kW (181 PS) at 2200 min

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° $^{+}$ 0,5° ($^{+}$ 0,75°) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	8,4-8,5	7,3 - 7,5	0,3(0,6)			
300	5,9-6,1	0,9-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control	deflection		Torque-control travel	
1	2	3	4	5	6	7	8	mm 9	10	11
max.	1100	15,2-17,8				approx.	100	min.7,5		
					_	14	300	5,9-6,1		
anamay	7,4	1140-1150			•					
approx. 42	4,0 1350	1185-1215				375-425		·		

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	distop np. 40°C (104°F)	Rotational-speed limitation	tation		idle switchir	fuel delivery ng point cm³/1000 strokes	Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm*/1000 strokes	rev/min	cm /1000 strokes	rev/min	+0,2
	72, 5 - 74, 5 (70, 5 - 76, 5)	1140-1150*	725	89,0 - 92,0 (87,0 - 94,0)		120,0-130,0 220(80-240)	1100 975 825 725	8,4 8,7 9,6 10,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 9,6 i

1. Edition

En

PE 6 A 95 D 410 LS 2621 RQ 300/1250 AB 1148 L

1 - 6 - 5 - 4 - 3 - 2 0 -75 -120-195-240-315° + 0,5 ° (+ 0,75 °)

supersedes = KHD company: F6L413F 125 kW (170 PS) at 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1.95 - 2.15)Port closing at prestroke

• ,		(1,000 2,10)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3 ;	6
1250	9,6-9,7	8,3 - 8,5	0,3 (0,6)			
300	6,9-7,1	1,6-2,2	0,3 (0,5		,	
	<u> </u>				<u> </u>	<u></u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load		_			idle spec	•			Torque control		
PRG che rev/min	Control rod	Setting por	Control rod travel rnm	Test sper Control rad travel rnm 5	rev/m:n	4)	Setting properties of the setting properties	Control rod travel	rev/min	cifications (5) Control rod travel mm 10	rev/min	Control rod travel mm	
550	19,2-20,8	550	20,0	8,6 4,0	1295-13 1325-13	10 55	300	7,0	100 300	min. 8,5 6,9-7,1	•	9,6- 9,7 10,1-10,2	
VH=	49°		<u></u>						345- 450	385=2,0 max. 1,0	910 990		
										_			
Torque-c	ontrol travel	<u> </u>	= 0,2	25	<u> </u>		i		95 -1 3	lO min 1	L	1 mm less contro	

on flyweight assembly dimension a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil ten	elivery on ontrol lever	Control rod stop (3a)	Fuel delive	ery characteristics 3b	Starting for	uel delivery d (6)
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1250	82,5 - 84,5 (80,5 - 86,5)	600	800 1000	85,0 - 88,0 (83,0 - 90,0) 84,0-87,0 (82,0-89,0)	100	119,0 - 129,0

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 i

1. Edition

PE 8 A 95 D 410 LS 2451

RQ 300/1150 AB 1074 L

company: KHD

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je $45^{\circ} + 0,5^{\circ} + 0,75^{\circ}$

F8L 413 F 173 kW (235 PS) at 2300 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) Port closing at prestroke

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) imm 6
1150	9,3-9,4	8,6-8,8	0,3 (0,6)			
300	5,9-6,1	1,4-2,4	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che rev/min 1	\sim	Full-load s Setting po rev/min 3	ent Control rod travel		rev/min		-		cifications Control rod travel mm 10	rev/min	Control rod (3) travel mm
600	15,6-16,4	600	16,0	8,3 4,0 1325	1195-1210 1120-1250 0-1,0	300	6,0	100 300 350-3 450	min.7,5 5,9-6,1 90 = 2,0 max.1,0	1150 550 875 1000	9,3-9,4 9,7-9,8 9,6-9,8 9,3-9,6

Torque-control travel on flyweight assembly dimension a =

Speed regulation. At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics (3b)	Starting f	Contra
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1150	86,0-88,0 (84,0-90,0)	600	100 700 400	86,5-89,5 (84,5-91,5) 86,5-89,5 (84,5-91,5) max. 84,5 (max. 86,5)	100	116,5-126,5

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 v 12

1. Edition

[estoil-150 4113

PES 6 A 90 D 410 RS 2596

RSV 350-1200 A0B 1148 L

supersedes_

company: Daimler-Benz

engine: OM 352 A

110 kW (150 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.95-2.15)

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm³/100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
12,2+0,1	7,4 - 7,5	0,3(0,45)			
8,1-8,3	0,9 - 1,5	0,2(0,4)			
	travel mm 2 12,2+0,1	travel mm cm³/100 strokes 2 3 12,2+0,1 7,4 - 7,5	travel cm³/100 strokes cm³/ 100 strokes 2 cm³/ 100 strokes 4 12,2+0,1 7,4 - 7,5 0,3(0,45)	travel mm cm³/100 strokes cm³/ 100 strokes mm 2 12,2+0,1 7,4 - 7,5 0,3(0,45)	travel mm cm³/100 strokes 2 cm³/100 strokes 4 cm³/100 strokes 2 cm³/100 strokes 2 cm³/100 strokes 3 cm³/100 strokes 3

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe		3 Tor	que control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	approx			1200	12,2-12	3
approx) x	5,0	·			27	100 350	min.19,0 8,1-8,3		13,2-13 12,6-12	
62 5	11,2 4,0 1500	1240-1250 1385-1415 0,3-1,7				į	00-56				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics			fuel delivery	(5a) Idle stop	
est oil temp. 40°C (104°F) ev/min cm³/1000 strokes 2		Note: changed to rev/min rev/min cm³/1000 strokes 3 4 5		cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1200	0,7 bar 74,0-75,0 (72,0-77,0)	1240-1250*	LDA 600 LDA 500	0,7 bar 73,0-75,0 (71,0-77,0) 0 bar 52,0-53,0 (50,0-55,0)	100	78,0-88,0 bei 16,1- 16,5 mm RW	-	_

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2596		0,70	13,2 - 13,3
with AOB 1148 L		0	11,5 - 11,6
•	0,45		12,8 - 12,9
		0,24	12,0 - 12,2
	•		

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 RAB 9,7a 1. Edition

En

PES 6 A 95 D 410 RS 2108 W RQ 200/1100 AB 647 L

supersede RABA company: D 2356 HM6, HMX06 engine:

estoil-150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at prestroke

(1,65-1,85)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,	12,1-12,3	0,3(0,6)			
200	7,4-7,	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load : Setting po	•	•	cifications 4	idle spec	-		cifications 5	Torque o	control 3
rev/min 1	Control rod travel mm	rev/min 3	Control rod travel rmm	Control rod travel rnm 5	rev/min 6	rev/min 7	Control rod travel rom 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	11,0	1145-116	200	7,5	100	min.8,9	l	12,0-12,1
VH= 1	max. 46°			4,0	1195-122	\$			7,4-7,6 20 = 2 mm		12,0-12,2
Torque	control travel				<u> </u>		1	145-11	60 min 1		1 mm less contro

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting f	tuel delivery
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm ² /1000 strokes / mm 7
1100	121,0-123,0 (119,0-125,0)	-	500	max. 118,5 (max. 120,5)	100	min. 18,0 mm RW

Checking values in brackets

8.82

rod travel

estoil-ISO

WPP 001/4 DAF 6,2 1

2. Edition

PE 6 A 85 D 320 RS2546

RQ 250/1200 AB1023R

DAF DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

	(0,	10 2,507				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,5-9,6	4,8 - 5,0	0,3(0,45)			
250	5,9-6,1	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load s	speed re	gulation		idle spec	ed regula	ation		Torque o	control
PRG che rev/min 1	Control rod travel	Setting por rev/min 3	Control rod travel rom	Test spec Control rod travel mm 5	rev/min	Setting prev/min	Control rod travel mm 8	Test spe rev/min 9	cifications Control rod travel mm	rev/min	Control rod travel mm
550	19,2-20,8	550	20,0	1	Ì	i '	6,0	100	min.7,5	-	-
VH	max. = 46°			4,0 1450	1310-1340 0 - 1,0			250 305-	5,9-6,1 345 =2,0		
								450	0 - 1		,

Torque-control travel

Speed regulation: At 1245 - 1260 min

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel delive	ery characteristics 3b	Starting fi Idle spee	d Castra
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	r ev/min 6	red travel crm ³ /1000 strokes / mm 7
1000	49,0 - 50,0 (47,0 - 52,0)			₹.,		
						./.

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 9,7 n

2. Edition

En

PES 6 A 95 D 410 RS 2128

RQ 200/1100 AB 860 DL

company RABA, Daewoo
D 2156 MTN 6
engine: 188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,9-2,1)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rods travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,3+0,1	12,7 - 12,9	0,3(0,6)			_
200	5,9-6,1	0,9 - 1,5	0,3(0,5)			
			İ			
	1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po	•	gulation Test spec	cifications (4)	idle spec	oint		cifications (5)	Torque o	(3)
rev/min	Control rod travel mm 2		Control red travel mm 4	Control rad travel mm 5	rev/min 6	rev/min 7	Control rod travel rmm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm
600	19,2-20,8	600	20,0	11,3 4,0	1145-1160 1195-1225	200	6,0	200	5,9 - 6,1 350=2,0		12,3-12,4 12,8-12,9 12,6-12,8 12,3-12,6

Torque-control travel on flyweight assembly dimension a

mm

1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever ap. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fi Idle spee	Contres
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	rad travel crm ³ /1000 strokes / mm 7
LDA 1100	0,7 bar 126,5-128,5 (124,5-130,5)	200	LDA 800 LDA 500	0,7 bar 128,0-131,0 (126,0-133,0) 0 bar 80,5-84,5 (78,5-86,5)	100	151,5 - 161,5 bei 16,2-16,8 mm RW

Checking values in brackets

Testatn =

rev/min decreasing pressure - in bar gauge pressure 500

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2128		0,70	12,8 - 12,9
with AB 860 DL		0	10,1 - 10,3
• -	0,25		12,1 - 12,2
		0,17	10,8 - 11,0
<u></u>	1		<u> </u>

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 8,3 c 4

1. Edition

En

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

supersedes_

company: Daimler-Benz

engine OM 360

141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	10,2+0,1	8,6 - 8,7	0,3 (0,45			
300	6,3-6,5	1,2 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkine PRG che rev/min 1	ck 1 Control rod travel	i .		•	rev/min	Idle spec Setting p rev/min 7	Control red travel	Test spe	cifications 5 Control rod travel mm	rev/min	Control rod (3)
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375		6,4	300	min.7,9 6,3-6,5 10 = 2,0 max.1,0	1	-

Torque-control travel on flyweight assembly dimension a

m

Speed regulation At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever pp. 40°C (104°F)	Control rod stop 3	Fuel delivi	ery characteristics 36	Starting for idle spee	d (astre
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1250	86,0-87,0 (84,0-89,0)	• ·	800	82,0-85,0 (80,0-87,0)	100	19,0-21,0 mm RW

Checking values in brackets

40

WPP 001/4 MAN 11,4 b

2 Edition

RQ 250/1100 AB 1123-1L

supersed 5.82 company MAN

engine D 2566 MUH/200 147 kW (200 PS)

Cested-150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 6 A 95 D 410 LS 2639

ort closing at prestroke (1,65–1,85) mm (from BDC

rort crossing at prest	(1,	65-1,85)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3 .	6
700	13,4+0,1	12,1 - 12,3	0,3 (0,6)			
250	5,9-6,1	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 .	ck Control rod travel			-	rev/min	idle spec Setting p	count Control (red travel			Torque o	Control rod travel
600	15,6-16,4	600	16,0		1145-1160 1245-1275 0 - 1,0		6,0	250	min. 7,4 5,9-6,1 00 = 2,0 max. 1,0	600 845	12,5-12,6 13,4-13,5 13,1-13,3 12,6-12,9

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation A145 - 1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of governor of Test oil ter	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivi	ery characteristics 30	Starting fi Idle spee	Contre
revima 1	cm ² /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev <i>im</i> un 6	red travel cm ³ /1000 strokes / mm 7
700	120,5-122,5 (118,5-124,5)		1100 500	122, 5-125,5 (120, 5-127,5) 119, 5-123,5 (117, 5-125,5)		130,0-140,0 bei 15,4-16,0 mm RW

Checking values in brackets

Test Specifications
Fuel Injection Pumps ②
and Governors

WPP 001/4 MAN 11,1 p 12

2. Edition

En

PES 6 A 95 D 410 LS 2542 RQ 250/1050 AB 1137 L

supersedes 5.82
MAN
company
D 2566 M/MF
engine Gabun-LKW

estoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Purpo Settings

Port closing at prestroke

(1,45-1,65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,2+0,1	12,3-12,5	0,3 (0,6			
250	6,7-6,9	0,9-1,5	0,3 (0,5			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkine PRG che	g of slider ck Control rod	Full-load s Setting po			incations (4)	idle spec Setting p			cifications 5	Torque o	Control rod	3
rev/min	travel	rev/min 3	nd travel mm 4	red travel rnm 5	rev/min 6	rev/min 7	nel tradi mm 8	rev/min 9	tra vel mm 10	rev/min 11	travel mm 12	•
600	15,6-16,4	600	16,0		1095-1110 1210-1240 0 - 1,0		6,8	250 385-4	min.8,2 6,7-6,8 25=2,0mm max.1,0	-	- .	•

Torque-control travel
on flyweight assembly dimension a =

THE

Speed regulation 1095-1110 min-1

t mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	leinvery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fi Idle spec	d (Garden
raw/mun 1	cm³/-1000 strokes	rev/min	rev/mm	cm ³ /-1000 strokes 5	rev/mun 6	ret traus cm ³ /1000 strokes / mm 7
1050	123, 0-12 50 (121, 0-1 270)	- -	500	106, 5-111,5 (104, 5-113,5)	100	125,0-135,0

Checking values in brackets

estoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 14,6 f
5. Edition

PE8P12OA32OLS3811 RQ 300/1150 PA 556 Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067 supersedes9.81

company
Daimler-Benz
OM 422 A
engine
243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at presi	troke (3	,95-5,15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
revimin	mm 2	cm ^{1/100} strokes	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3 *	mm 6
1150	10,4+0,	1 16,2 - 16,4	0,4(0,8)			
300	5,0-5,	2 1,4 - 2,2	0,8(1,2)			
	;					
					The second of th	

A flust the fuel delivery from each outlet according to the values in

B. Governor Settings

heckind	of slider	Full-toad	speed re	gulation		idle spee	d regula	ation	;	Torque o	control
•	•	Setting p	cint	Test spe	cifications	Setting p	oint	Test spe	cifications		• •
וויים עי	Control rad travel mm	revimin	Cantrol rod traver mirm 4	revimin 5	Control rod travel mm 6	revimin 7	Control rod tra vel mm 8	rev/min 9	Control rod travel mm 10	revimin	Control rod travel mm
500	14,7-16,3	600	15,5	9,4	1195-1210 1225-1255		4,2	300	min.6,0 4,1-4,2 380=2,0 mm		
			f .			\$					

Torque-control travel on flyweight assembly lamen, on a

Speed regulation At

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor c	lelivery on jontrol lever np. 40 () (104 F)	. Control rod stop	Fuel deliv	ery characteristics	Starting fuel delivery		
rev min	cm ² /~1000 strokes	rev/min	rev/min	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /100 strokes 7	
1150	162,0 - 164,0 (159,0 - 16,0)	1195-1210*	600	152,0 - 158,0 (149,0 - 161,0)	100	125 - 145	
			* *	:	2		

Checking values in brackers

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 m

2. Edition

En

PE 6 A 95 D 410 RS 2575

RSV 250...900 A 7 3 2060 DL

supersedes 11.79

DAF company

See service Information VDT-I-DAF 004

engine DU 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,00-2,10 Port closing at prestroke (1,95-2,15) Port closing difference between control-rod travel 9 and max. BDG3,0-4,0°.

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm1100 strakes	cm ^{-/} 100 strokes	mm	cm·/100 strokes	mm
1	2	3	4	2	3	6
900	10,5-10,6	5,2 - 5,4	0,3(0,6)			
250	8,4-8,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	rev/min	Interm	ediate rate	ed speed	(4)	Lower	rated speed	(3) to	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod travel
of control	mm	mm rev/min				deflection in degrees	revimin	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0				approx.	250	5,5	500	10,5-10,6
		4,0	1			18			300	11,3-11,5
approx.			-				250	5,9-6.1		
53 (2a)	940-95 945-97						290-35	0=2,0		
	11100-		_ i		_	1	1		<u> </u>	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	uit +oad stop emp 40°C (104°F)	Rotational- speed limitat	11361	net delivery naracteristics	Starting f	uel delivery	5) (4a) 1d	Control rod
rev/min	cm ³ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1 000 strokes 5	rev/min 6	cm ³ /1000 stro 7 RW	okes rev/min 8	travel mm 9
900	51,5 - 53,5 (49,5 - 55,5)	940-950* ·	p.v.		100	19,0-21	,0 250	6,0

Checking values in brackets

* 1 mm less control rod travel than cor 2

Test Specifications 2 Fuel Injection Pumps and Governors

WPP 001/4" MAN 9,2 n

2. Edition

PES 5 A 95 D 410 LS 2543 Z RQ 250/1050 AB 1042 DL

supersedes 10.79

- 2 je 72° $^{+}_{-}0,5^{\circ}$ $(^{+}_{-}0,75^{\circ})$

company MAN D 2565 M/MR/MFR (138.0KW-188PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil SO

mm (from BDC)

3	(1	,40-1,007				
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm³/ 100 strokes	mm ·	cm ³ /100 strokes	mm
1050	11,2-11,	3 11,7 - 11,9	0,3(0,6)			
250	6,6-6,8	1,4 - 1,9	0,3(0,5)			
•		:	1			

B. Governor Settings

Checkin	g of slider	Full load	speed re	gulation		ldle spec	ed regula	ation		Torque o	ontrol
-	Control rod travel mm	Setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting processing setting se	Control rod travel mm 4	rev/min 5	Control rod travel mm	Setting programmer of the setting programmer	Control rod travel		cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
600			16,0	- -	1095-1110 1145-1175	i	6,7	İ	min.8,2 6,6-6,8	1050 910	11,2-11,3 11,3-11,6
1250	0 - 1,0	J: 						500	max.1,0 510=2,0	800 600	11,8-12,0 12,0-12,1

Torque-control travel on flyweight assembly dimension a = 0,4

1095-1110 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp=40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting f	tuel delivery
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min	cm ³ /100 strokes 7
1050	116,5 - 118,5 (114,5 - 120,5)		750	114,5 - 117,5 (112,5 - 119,5)	100	149,0 - 159,0
			500	max. 116,5 (max. 118,5)		
				(110,0)		

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 11.0 d

4 - Edition

PE 6 P 110 A 320 LS 3805

RSV 650-1150 P 1/820

supersedes2.82 company Daimler Benz

OM 421

155 kW (211 PS)

6 - 3 - 5 - 2 - 4 - 1 $0 - 45 - 120 - 165 - 240 - 285^{\circ} \pm 0,5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(3,95-4,15)

Port closing at prestroke

Testoil-ISO 4113

4,00-4,10

mm (from BDCZyl. 6

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm#100 strokes	cm ^{-/} 100 strokes	mm	cm /100 strokes	mm
1	2	3	4	2	3	6
1130	12,3+0,1	11,9 - 12,1	0,4(0,8)			1
650	6,4-6,6	2,3 - 2,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

11 7 7 7	r rated speed Control rod travel mm		Interme	ediate rated	speed 6	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	(3)	rque control Control rod travel mm
loose	800 X =	0,3-1,0 4,0				ca.30	650	6.5	ì	12,3 - 12,4 12,3 - 12,5
ca.57	1185-12	170 = 11,3 205 = 4,0 1,3 - 1,7					650-715	=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Pull-load stop Test oil temp. 40°C (104°F)		Rotational- speed limitat Note: changed to)	speed limitat characteristics		Starting f Idle	uel delivery 5	(da) Idle stop Control rod travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1130	119,0 - 121,0 (116,0 - 124,0)	1160-1170*	-	•	100	130 - 150	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Speed difference between 1.0 mm reguladet and control-rod travel 4.0 mm at $n = 25-35 \text{ min}^{-1}$

10,82

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 HOR 2, 9b
1. Edition

PES 3 A 80 D 410/3 RS1313 EP/RSV 400-1250 AO B 1123 L

supersedes companHolder engineVD 310-8

 $1 - 2 - 3 \pm 0,50^{\circ}$ $0 - 120 - 240^{\circ} (\pm 0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,70-1,80 Port closing at prestroke (1,65-1,85)

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
		cm / 100 strokes 4	mm 2	cm: 100 strokes	mm 6		
9,4-9,5	5,6 - 5,7	0,2(0,35)					
6,4-6,6	0,9 - 1,5	0,2(0,3)					
1	1 (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	cm /100 strokes 2 2 3,4-9,5 5,6 - 5,7	cm ¹ /100 strokes cm ¹ /100 strokes cm ¹ /100 strokes 4 cm ¹ /100 stro	travel (mm) (2) cm ¹ /100 strokes (mm) (2) (2) (3) (4) (4) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	travel (mm) (2) cm ¹ /100 strokes (mm) (mm) (mm) (mm) (mm) (mm) (mm) (mm		

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 9.0-9.9°.

1 Uppe	1 Upper rated speed revimin			Intermediate rated speed			Lower	3 Torque control		
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rod travel		Control rod : travel
of control lever	mm	mm rev/min				deflection in degrees	rev-min	mm	rev/min	mm
	2	3	14	5	6	1	ક	9	10	11
Toose	800	0,3-1,0				approx. 22	400	6,0	-	-
approx.	X =	4,0				22		min.19 6,4-6,6		
49	8,4 1	290-1300					500-560			ļ
23	4,0 1	315-1345 0,3-1,7					650	0 - 1		
	<u> </u>		<u> </u>				Ĺ	<u> </u>	L	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Est oil temp 40°C (104°F)		Rotational- speed limitat	11.361		Starting fuel delivery 5			4a Idle stop	
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min 8	travel mm	
1250	56,5 - 57,5 (55,0 - 59,0)	1290-1300*							

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7w8

2. Edition

supersede 2.81

company Daimer Benz

oM 352

81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 6 A 90 D 410 RS 2569

Port closing at prestroke

(2,20-2,40) 2,25-2,35

mm (from BDC)

RSV 350-1300A0B 1140L

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Oifference cm ¹ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,1	5,3 - 5,4	0,3(0,45)			
350	+0,1 8,6-8,8	0,9 - 1,5	0,2(0,4)			

B. Governor Settings

1 Uppe	r rated speed	rev/min	Intern	nediate rat	ed speed	4	Lower	rated speed	(3) to	rque control
Degree of deflection	Control rod travel	Control rod travel				Control- lever		Control rad travel		Control rod : . travel
of control lever	mm 2	mm rev/min	4	5	6	aeflection in degrees 7	rev/min 8	mm 9	rev/min	11
locse	800	0,3-1,0	1		·	aprox.	350	2.0*	1300	10,1-10,2
approx						20	350	8,6-8,8		10,6-10,9
61	1	350=9,1					630-69	0 = 2,0	500	11,3-11,4
(23)		465=4,0 ,3-1,7	<u> </u>							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)			11.36	Characteristics				
Test oil to rev/min	cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm#1000 strokes 5	rev/min 6	cm³/1000 strokes 7		Control rod travel mm 9
1300	53,0 - 54,0 (51,0 - 56,0)	1340-1350*	500	45,0 - 47,0 (43,0 - 49,0)	100	78,0-88,0	350	8,7

Checking values in brackets

Adjust the fuel delivery from each outlet according to the values in * Set idle auxiliary spring at 2,0 mm.

^{* 1} mm less control rod travel than col. 2

WPP 001/4 HOR 2,0 b

3. Edition

PES 2 A 80D 410/3 RS 1329 RS

RSV 400-1250 A0B 1123 L

supersedes 3.80 company Holder engine VD 6001/2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

		mm (from BDC)	RW 9	ment 1	
Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
9.7-9.8	6.0-6.1	0,2 (0,3	5)		
		0,2 (0,3	D		
	Control rod travel	Control rod travel	Control rod travel Control rod travel	Control rod travel mm	Control rod travel

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 and max. = 9.0-9.9°.

B. Governor Settings

Upper	rated speed		Intermediate			\sim	rated spe		3 Tor	que control
Degree of deflection of control lever	revimin	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control ever	rev/min	Control rod travel mm	rev/min	travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-		**	ca. 22	400	6,0	-	-
	X = 3	,75					100 400	min 19,0 6,4-6,6		
5a.48	9,0 4,0 1495	1290-1300 1330-1360 0,3-1,7					495- 600	555= 2,0 max.1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-k	oad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	(5a) idie	stop
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	59,5-60,5 (58,0-62,0)	1290-1300*	-	-		-	_	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pamps and Governors

WPP 001/4 MB 11,0 q

1. Edition

PE 6 P 120 A 320 LS 3815

RSV 650-1150 P1/820R

supersedes_

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

OM 421 A

company Naimler-Benz

and engine fuel-injection tubing

1 680 750 067

206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(3.95-4.15)	mm (from BUC)			
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1130	12,0+0,1	18,4 - 18,6	0,5(0,9)			
650	4,5-4,7	1,8 - 2,4	0,8(1,2)			
				ł		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travei	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	revimin	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
1oose	800	0,3-1,0	-	•	-	approx.	650	4,1	-	-
anneov	X =	3,0				30	650	4,0-4,2		
approx. 54 5	11,0 4,0 1300	1160-1170 1185-1215 0,3-1,7					655-	715 = 2,0 **		

^{**} Set idle auxiliary spring at 2,0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		l delivery racteristics	Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes		rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	184,0-186,0 (181,0-189,0)	1160-1170*	-	-	100	120,0-140,	0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

BOSCH

Test Specifications Fuel Injection Pumps and Governors

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WPP 001/4 MAN 11,1 p 5

2. Edition

En_

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 1052 DL

superseded 0.79
company MAN-SAVIEM
engine D2566 MSH
(177,0KW-241PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,45-1,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min " " " " " " " " " " " " " " " " " " "	rnm 2	cm³/100 strokes	cm'/ 100 strokes	mm - 2	cm ³ /100 strokes : 3	mm 6
1100	12,0-12,1	12,5 - 12,7	0,3(0,6)]
250	5,9-6,	0,8-1,4	0,3(0,5)			
•		1	! ! :	!		
	•		1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full load	speed reg	gulation		Idle spec	ed regula	tion		Torque o	control
		Setting p	oint .	Test spec	cifications	Setting p	oint	Test spe	cifications		
rev/min	Control rod travel mm 2	rev/min	Control rod travel rmm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel rom 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,0	1145-1160	250	6,0	100	min.7,5		:
VH =	max. 46°	İ		4,0	1190-1220			250	5,9-6,1		
•			İ	1300	0 - 1,	o		500	max.1,0		: : !
								335-	375=2,0		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever op 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting 1	uel delivery
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1100	124,5 - 126,5 (122,5 - 128,5)		500	500 max. 113,5 (max. 115,5)		125,0 - 135,0 14,0-14,6 mm RW
					·	

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BRE 9,6b 1. Edition

PE 6 P 110 A 320 RS 328

①

ROV 300-1500 PA 500

supersedes

company: Breda engine: ID 32/6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,5-3,6 Port closing at prestroke mm (from BDC) Fuel delivery 65) Control rod Rotational speed Difference Control rod **Fuel delivery** Spring pre-tensioning (torque-control valve) cm³/ rev/min cm³/100 strokes 100 strokes cm³/100 strokes mm 0,4(0,8) 14,8-15,0 1500 10,0+0,1 3,2-3,8 0,4(0,7)6.0-6.4300

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection	rev/min Control	Control rod (1a travel	aenection		Control rod travel	Degree of deflection		Control rod travel	J	1
of control lever	rod travel	rev/min (28	of control	rev/min	mm . (4)	of control lever	rev/min	mm (3)	rev/min	നന
1	2	3	4	5	6	7	8	9	10	11
max.	1440	15,2-17,8	-	-	-	ca.14	100	min.7,6	250	,3-1,5
ca.63	9,0	1540-1550 1610-1640	-			330-440	300	6,0-6,2	670 1080	3,7-3,9 5,7-5,8
	1675	0- 1,0				3a)			1500	9,1

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test cil ten		intermediate speed			Starting Idle switchir	\mathbf{O}	Torque- travel	Control od
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1500	148,0-150,0 (145,0-153,0)	1540-1550*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than coi 2

WPP001/4 MB 5,7g¹
1. Edition

En

PES6A80D410 RS2085X

RSV350-1300A2B1005DL

supersedes

company Daimler-Benz engine OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2 1-2 3)

mm (from BDC)

e-tensioning ontrol valve)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	on travel deflection travel deflection of control		rev/min	Control rod travel mm						
1	2	3	4	5	6	7	8	9	10	11
loose	300	0,3-1,0	-	•	-	ca.20	350	7,5	1290 500	8,1-8,2 9,3-9,4
5.	X =	4,25					100 350	min.19,5 7,9-8,1		8,6-8,8
ea.50	7,1 4,0 1550	1330-1340 1450-1480 0,3-1,7						.,,.		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	pad stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	5a) idle stop		
Test oil tem	p. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min	rev/min cm³/1000 strokes		rev/min	ev/min cm³/1000 strokes		Control rod travel mm	
<u> </u>	2	3	4	5	6	<u> </u>	8	9	
1290	39,0-40,0 (37,5-41,5)	1330-1340*	800 500	37,0-39,0 (35,5-40,5) 36,0-38,0 (34,5-39,5)	100	78,5-88,5 14,6- 15,0mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

MPP 001/4 MB 5,7 x 5

1. Edition

En

PES 6 A 90 D 410 RS 2596

RSV 350-1400 AOB 2099 L

supersedes_

company Dimler-Benz

engine C.1 352 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(1.95-2.15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1380	12,6+0,1	7,8 - 7,9	0,3(0,45			_
350	8,2-8,4	0,5 - 1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Torque control	
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	_	-	ca.22	350	8,3	1380	12,6+0,1
	X =	2,0					470	1,9-2,1	500	13,5+0,1
			į						1150	13,1+0,3
3a.53	11,6	1420-1430	,							
	4,0 1550	1480-1510 0.3-1.7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full to	ad stop	6 Rotational- speed limitat.		l delivery racteristics	Starting Idle	fuel delivery	Sa) idie	estop
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm 9
1380	77,5-78,5 (75,5-80,5)	1420-1430*	800	78,0-80,0 (76,0-82,0)	100	100,0-110,0 78,8- 18,2 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 PEN7,0 c 1 1. Edition

En

PE6P100A320RS291Z RSV200-1200P1/305R

supersedes _

company: Volvo-Penta engine: D 70 B/PP

•

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

	<u> </u>	(1,70 1,50)				**************************************
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	8,5-8,6	5,6-5,8	0,3(0,6)			è
225	5,8-6,0	1,0-1,4	0,25(0,5)			
	i		<u> </u>	<u> </u>	J	<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe		\sim	que control
Degree of deflection of control lever	rev/min	Centrol rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 X≃5	0,3-1,0 0	-	-	-	ca.22	225 100	5,4 min.20,0	-	_
ca.64	7,5 4,0 1400	1240-1250 1300-1330 0,3- 1,7					225 280-3	5,3-5,5 30=2,0		,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		I delivery racteristics	Starting Idle	fuel delivery	Sa) Idie	stop
Test oil temp rev/min		Note: changed to rev/min 3	rëv/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travei mm 9
700	56,0-58,0 (54,0-60,0)	1240-1250*	-	-	100	210,0-260,0 20,0- 21,0mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 p 10

2. Edition

En

PES 6 A 95 D 410 LS 2542

RSV 250-1100 A1B 1124

supersedes5.81

company RVI-Saviem

engine: MAN D2566 MSFV

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5 - 1,6
Port closing at prestroke (1,45-1,65) mm (from BDC)

		Control rod travel	, 60. 60	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm³/100 strokes 3	mm 6
	1100	11,7+0,1	11, 3-11,5	0,3(0,6)			
J	250	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	4 Lower Degree of deflection of control lever 7	rated spe rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm 11	
loose	800 X =	0,3-1,0	-	••	_	ca.23	250 100 250	5,5 min.19,5 5,9-6,1	500		1
£3.60	10,7 4,0 1350	1140-1150 1185-1215 0,3-1,7					365-4	25=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	pad stop	6 Rotational- speed limitat.	Now,		Starting Idle	fuel delivery	(5a) idle stop	
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700 500	102,5-105,5 (100,5-107,5 max. 106,5 (max. 108,5)		121,5-131,5 15,2- 16,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications **Fuel Injection Pumps** and Governors

WPP 001/4 DAF 8,3 i 1 4. Edition

PE 6 A 90 D 410 RS 2524

RSV 250-1200 A 5 B 2012 DL supersedes10.81

company DAF

** Cold start test on EP/RSV governor according to Service Information.

DH 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,25-2,45) Port closing differnce between control-2,30-2,40 RW 9 mm (from BDC) rod travel 9 and max. = 4.5 - 5.5°. Port closing at prestroke

			C 4 0 0 - C 4 10 -				Y X Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y
F		Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
r	ev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1		2	3	4	2	3	6
	1000	9,4-9,5	7,0-7,1	0,3(0,45)			
	250	6,5-6,7	0,9 - 1,5	0,2(0,4)		·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed:	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.16	250	5,5	1000	9,4-9,5
	Х	3,0					250	5,9-6,1	400 300	9,4 - 9,6 9,5+0,5
§3a. 49	1260-1	250 = 8,4 290 = 4,0 0,3-1,7				580-64	0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	Sa) Idle	stop
Test oil tem rev/min 1		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
1000	70,0 - 71,0 (68,0 - 73,0)	1240-1250*	-	-	100	19,0-21,0 **		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 PER 5,8 c 4 1. Edition

VE 6/12 F 1300 L 21-2 0 460 426 013

supersedes... Nozzle-and-holder assembly company PERKINS

1 688 901 020 (172 + 3 bar) engine: T6.354.4

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,45

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	600	2,5-2,9	mm	0,66	
1 2 Supply pump pressure	600	3,8-4,4	bar (kgf/cm²)	0,66	
1.3 Full-load delivery without	1000	78,5-82,5	cm ³ /1000 strokes	0	2,5 (3,0)
charge-air pressure Full-load delivery with	1000	92,5-93,5	cm³/1000 strokes	0,66	
charge-air pressure 1 4 Idle speed regulation	270	8,0-12,0	cm ³ /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 78,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	1480	42,0-50,0	cm ³ /1000 strokes	0,66	
1 7 Load-dependent start of delivery	-				

2. Test Spec	ifications	checking values in brackets ()	
21 Timing device	um	400	600	800
LDA=0,66 bar	u = Lea/win	0,7-1,5 (0,4-1,8)	(2,0-3,4)	3,8-4,6 (3,5-4,9)
2.2 Supply pump	n = rev/min	300		1300
LDA=0,66 bar	bar (kgf/cm²)	3,0-3,6		6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111 (40-126		1300 55-111 (40-126)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	1550 1480 1300 1000 1000 *700 500	max. 9,0 (42,0-50,0) 86,5-89,5 (85,7-90,3) (78,2-82,8) (90,7-95,3) 84,5-88,5 (84,2-88,8) 68,5-72,5 (67,5-73,5)	0,66 0,66 0,66 0,66 0,32
switch-off	1300	0	
idie stop	330-420	0	
	270	(6,0-14,0)	
End stop	150 230	min. 78 max. 78	
2.4 Solenoid	max. cut-in volta	ge	
	test voltage		

3. Dimen	for assembly and adjustment
Designation	mm
K	-
KF	5,2-5,4
MS	1,1-1,3
svs	max. 6,0
хк	21,8-23,8
∦ L	12,4-15,7
B.	
Observations * Manifo	ld-pressure
compen	sator stroke

= 4.0 mm.

Correction at the adjusting nut. (46)

9.82

BOSCH Geschäftsbereich KH, Kundendienst Kfz Ausrustung
6 1980 by Robert Bosch GmbH, Postfach 50, 07,000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprima an Appublique Féderale d'Alleinagne par Robert Bosch GmbH.

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5c

2. Edition

VE 4/9 F 2000 R 25 R 25 supersedes 4.82 company VWW engine: EA 086

0 460 494 010 0 460 494 011

Testoil-ISO 4113

Overflow Temperature 45°C

Test Instructions and Test Equipment

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

2. Test Specifications checking values in brackets (

see VDT-W-460/

Pre-stroke setting	mm		see vui ·w·4ou/	h
1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	3,4 - 3,8 mm		
1 2 Supply pump pressure	1500	4,0 - 4,6 bar (kgf/ci	m²)	
1 3 Full-load delivery without charge-air pressure	1500	29,5 - 30,5 cm ^{-3/1000}	strokes	2,5(3,0)
Full-load delivery with charge-air pressure		cm ³ /1000	strokes	
1 4 Idle speed regulation	415	6,0 - 10,0 cm ^{3/1000}	strokes	2,5(3,0)
1 5 Start	100	min. 38,0 cm ^{3/1000}	strokes	
1.6 Full-load speed regulation	2050	8,0 - 14,0 cm ^{3/1000}	strokes	
1.7 Load-dependent start of delivery		•		

1 Timing device	n = rev/min	1000 1,3-2,1(1,0	-2,4)	1500 (2,9-4,3)		1800 4(4,3-5,7)
2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,3-1,9				2000 ,4-6,0
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-	153)			2000 (40 - 153)
2.3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery		Charge-air press.	3. Dimen	isions for assembly and adjustment mm
End stop	2060-2160 2050 2030 2000 1500 600	0 17,5-24,5 25,0-27,0 18,0-21,0			K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,2-1,4 max.3,6 1,8-2,4
switch-off elect.	400	bei 2,5 V	0		A B	9,0-14,0 10,4-15,6
idle stop	700 max. 2,0		(4,0-12,0)		* *operating stroke (KSB)	
End stop	400 500	min. 13,5 max. 19,5	10 V		3610	nc (Nob)
2.4 Solenoid	max cut-in voltag i 斑蛉t 紅次t 強姿eX X X	xxx min. rated voltage	ge 12V.			and the second s

E24

BOSCH

Geschäftsbereich KH, Kunden 7 1980 by Robert Basilt Gmb

Itsbereich KH. Kunitenglenst. Kfr. Ausrust ing

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,5d

2. Edition

VE 4/9 F 1800 R 25-1 R 25-1 P

0 460 494 012

Overflow temperature 45°C

supersedes 4.82 company VWW **EA 086**

0 460 494 013 All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting	Rot speed	Settings	•	Charge-air press.	Difference in
1. Settings	rev/min	bar (k		bar (kgf/cm²)	delivery cm ³
1 1 Timing device travel	1500	3,4 - 3,8	mm		
1 2 Supply pump pressure	1500	4,0 - 4,6	bar (kgf/cm²)		
1.3 Full-load delivery without	1500	29,5 - 30,5	cm ³ /1000 strokes	•	2,5(3,0)
charge-air pressure Full-load delivery with charge-air pressure			cm ³ /1000 strokes	1	0.5(2.0)
1 4 Idle speed regulation	415	6,0 - 10,0	cm ³ /1000 strokes	1 2	2,5(3,0)
1 5 Start	100	min. 33,0	cm ³ /1000 strokes	1	
1 6 Full-load speed regulation	1900	6,0 - 12,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery		-			

1 Timing device	n = rev/min	1000 1,3-2,1(1,0-2,4		500 9-4,3)	180 4,6-5,4	00 1(4,3-5,7)
? 2 Supply pump	n = rev/min bar (kgf/cm²)	400 1,3 - 1,9			180 4,8-	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153))		180 55 - 138	00 (40-153)
2 3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)	3. Dimen	sions for assembly and adjustment mm
End stop	1920-2040 1900 1850 1800 1500 600	22,5-29,5 (2 27,5-29,5 (2 (2	,0-13,0) 2,0-30,0) 6,2-30,8) 7,7-32,3) 6,5-22,5)		k kf ms svs * FH	3,2-3,4 5,7-5,9 1,2-14, max.3,6 1,8-2,4
switch-off	400	bei 2,5 V ()		A B	9,0-14,0
idle stop End Stop	700 415 400 500	min. 13,5 max. 19,5	4,0-12,0)		Observations * *opera strol	ating ke (KSB)
2 4 Solenoid	max cut-in volta	ese xxx min. 10 rated voltage 1	V 2V.			

46

WPP 001/4 VWW 1,6t 2. Ausgabe

n

VE 4/9 F 2100 R 48-2 (P)

0 460 494 102;

103

Overflow temperature 45°C

supersedes6.82 company: VWW

engine: Typ 2 USA

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/.

1. Settings	Rot speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,3-3,7	mm		
1 2 Supply pump pressure	1500	4,8-5,4	bar (kgf/cm²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes		2,5 (3,0
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0
1 5 Start	100	min. 38,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	2300	11,5-17,5	cm³/1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Spe	ecifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	1000 1,2-2,0(0,9-2,3)	1500 (2,8-4,2)	2100 5,4-6,2(5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2100 6,3-6,9
Overflow delivery	$n = rev/min$ $cm^3/10 s$	500 55-138 (40-153)		2100 55-138 (40-153)

2.3 Fuel deliveries				3. Dimens	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment
End stop	2450-2550 2400	0 max. 5,5		ĸ	3,2-3,4
	2300	(10,5-18,5)		KF	5,7-5,9
	2100 1500	27,0-29,0 (25,7-30,3) (31,2-35,8)		MS	1,3-1,5
	600	21,5-24,5 (20,0-26,0)		svs	max. 4,8
				+ FH XK - XूL	1,8-2,4 18,6-20,6 7,5-10,8
elect.	400	0		8	7,3 10,0
idle stop	2000 450 415	max. 3,0 min. 2,0 (4,0-12,0)		Observations + *operat stroke	•
End stop	400 470	min. 17 max. 23		JUI OKC	(NOD)
2 4 Solenoid	max cut⊣n voltaG	xxx min. 10,0 V xx rated voltage 12V.			

WPP 001/4 VWW 2,3a

3. Edition

VE 6/10 F 2250 L 36 (P)

1.7 Load-dependent start of delivery

0 460 406 005;

supersed 82 company:VW engine: 087 LT

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting Settings Charge-air press. bar (kgf/cm²) Difference in Rot. speed 1. Settings delivery cm3 rev/min 3,1 - 3,51.1 Timing device travel 2000 6,4 - 7,02000 bar (kgf/cm²) 1 2 Supply pump pressure 28,5 - 29,52,5(3,0) 1500 cm³/1000 strokes 1.3 Full-load delivery without charge-air pressure Full-load delivery with cm³/1000 strokes charge-air pressure 1 4 idle speed regulation 10,0 - 14,0cm³/1000 strokes 2,5(3,0) 350 min. 43,0 cm³/1000 strokes 100 1 6 Full-load speed regulation 6,0 - 12,0cm³/1000 strokes 2525

2. Test Spe	ecifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	1500 0,9-1,7(0,6-2,0)	2000 (2,6-4,0)	2250 3,8-4,6(3,5-4,9)
2 2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,7-3,3		2250 7 , 1-7 , 7
Overflow delivery	n = rev/min cm³/10 s	500 55 - 138(40-153)		2250 55-138(40-153)

	cm ³ /10 s	55-138(40-	-153)		55-	138(40-153)
2.3 Fuel deliveries					3. Dimer	1SionS for assembly and adjustment
Speed control leves	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2725 2525	max. 3,0	(5,0-13,0)		к	3,2-3,4
}	2250 1500	24,0-26,0	(22,7-27,3) (26,7-31,3)		KF	6,4-6,6
	750	26,5-29,5	(25,0-31,0)		MS	1,4-1,6
					svs	max.4,5
switch-off					XK	20,1-22,1
					ΚL	8,9-12,6
elect.	400	0				
idle stop	400 350	2,0-8,0	(1,0-9,0) (8,0-16,0)		Observations	
End stop	400 500	min. 21 max. 26				
2 4 Solenoid	max cut-in volt	age xxx min. x rated voltag	10,0 V ge 12V.			

WPP 001/4 VWW 1,6u 3. Edition

VE 4/9 F 2100 R 48 0 460 494 039

supersed 6.82 company:VWW

engine: EA 162/1,6

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

e-stroke setting	mm	•	ę	see VDT-W-460/	
. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 Timing device travel	1500	3,3-3,7	mm		
2 Supply pump pressure	1500	4,8-5,4	bar (kgf/cm²)		
3 Full-load delivery without charge-air pressure	1500	33,0-34,0	cm³/1000 strokes		2,5(3,0)
Full-load delivery with			cm³/1000 strokes		
charge-air pressure 4 Idle speed regulation	415	6,0-10,0	cm³/1000 strokes		2,5(3,0)
.5 Start	100	min.38,0	cm³/1000 strokes		
.6 Full-load speed regulation	2300	11,5-17,5	cm ³ /1000 strokes		
.7 Load-dependent start of delivery					
, ,			cm ³ /1000 strokes		

The second section of the second section of the second section		The second secon	COLUMN AND THE PROPERTY OF THE		
2. Test Spe	cifications	checking values in brackets	()		
2 1 Timing device	n = rev/min mm	1000 1,2-2,0(0,9-2,3	1500) (2,8-4,2)	210 5,4-6,2(5	
2 2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		210 6,3-	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		55-138(40	
2 3 Fuel deliveries				3. Dimen	Sions for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment
End stop	2450-2550 2400 2300 2100 1500 600	0 max.5,5 (10,5- 27,0-29,0 (25,7 (31,2 21,5-24,5 (20,0	7-30,3) 2-35,8)	K KF MS SVS + FH	3,2-3,4 5,7-5,9 1,3-1,5 max.4,8 1,8-2,4 18,6-20,6
switch-off elect.	400	0		B XL	7,5-10,8
idle stop End stop	2000 450 415 400 500	max. 3,0 min. 2,0 (4,0- min. 17 max. 23	-12,0)	Observations + *opera strok	ting e (KSB)
^ 4 Solenoid	max cut-in voltage				

46

WPP 001/4 VWW 2,3b1

2. Edition

VE 6/10 F 2400 L 32

0 460 406 003

supersedel.82 company VW engine. 087/10

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

2. Test Specifications checking values in brackets (

max.cut-in voltage

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting	mm		see VDT-W-460/		
1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,8 - 3,2	mm		
1 2 Supply pump pressure	1500	5,2 - 5,8	bar (kgf/cm²)		
S Full-load delivery without charge-air pressure	1500	28,5 - 29,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure		-	cm ³ /1000 strokes		
1 4 Idle speed regulation	350	10,0 - 14,0	cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min. 42,0	cm³/1000 strokes		
1 6 Full-load speed regulation	2600	15,0 - 22,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery		_			

2.1 Timing device	n = rev/min mm	1000 0,8-1,6(0,5-1,	150 9) (2,3		6,0	2400 -6,8(5,7-7,1)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4		y yan		2400 7,7-8,3
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)			55-	2400 -138(40-153)
2 3 Fuel deliveries					3. Dimen	tor assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm3/1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment
End stop	2700 2600 2400 1500 750	22,0-24,0 (2	4,5-22,5) 0,7-25,3) 6,7-31,3) 4,5-30,5)		K KF MS SVS	3,2-3,4 6,4-6,6 1,4-1,6 max.3,0
switch-off	2400	0			x k xL	18,5-20,5 9,2-12,9
Idle stop	400 350	3,0-9,0	3,0-16,0)		Observations	
End stop	400 500	min. 20,0 max. 25,0				

xxx min. 10,0 V

exxxxxxx rated voltage 12V.

2 4 Solenoid

Test Specifications
Distributor-type
Fuel-injection Pumps

WPP 001/4 VWW 1,6 d 4. Edition

VE 4/9 F 2400 R 66-8

0 460 494 077

VWW

1.6 1 Rabbit

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm			see VDT-W-460/	
1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9-3,3	mm		•
1 2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)	!	· · · · · · · · · · · · · · · · · · ·
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure		-	cm ³ /1000 strokes	i	1
1.4 Idle speed regulation	415	7,0-11,0	cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min.38,0	cm ³ /1000 strokes		•
† 6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes	;	T
1.7 Load-dependent start of delivery		-	•		

z. iest spec	mications	checking values in brackets (angan nggan manana and in a saman nakati ana an inita da in and an angan			
1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	(2	1500 2,4-3,8)	2400 6,1-6,9(5,8	-7,2)	
2 2 Supply pump	n = rev/min . bar (kgf/cm²)	400 2,1-2,7			2400 7 , 0 - 7 , 6		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-123)			2400 55 - 138(40	-123)	
2 3 Fuel delivenes	Line of the second seco	· Company of the second of the			3. Dimer	Isions	
Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm	
End stop Switch-off	2700 2600 2400 1500 600	2,5-9,5 (2,0-10 (10,0-1) 26,0-28,0 (24,7-2) (28,2-3) 17,5-20,5 (16,0-2)	.8,0) !9,3) !2,8)		K KF MS SVS *FH XK	3,2-3,4 5,7-5,9 1,3-1,5 max.2,5 1,8-2,4 18,4-20,4	
elect.	400	0			8	,	
Idle stop	1200 600 415 400	max. 5,0 max. 6,0 (5,0-1	3,0)		* *oper	ating ke (KSB)	
End stop	500	max. 19,5					

3)

Test Specifications Distributor-type Fuel-injection Pumps

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WPP 001/4 VWW 1,5e 2. Edition

Εn

VE 4/9 F 1500 R 25-2

0 460 494 017 0 460 494 018

Overflow temperature 45°C

supersedes 4.82 company VWW engine EA 086

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm		see VDT-W-460/.		
1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,4 - 3,8	mm	1	
1 2 Supply pump pressure	1500	5,1 - 5,7	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1000	27,5 - 28,5	cm ³ /1000 strokes		2,5(3,0)
Full-toad delivery with charge-air pressure		_	cm ³ /1000 strokes		
1.4 Idle speed regulation	415	6,0 - 10,0	cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min. 38,0	cm3/1000 strokes	:	• •
1 6 Full-load speed regulation	1560	19,0 - 25,0	cm ³ /1000 strokes	: :	; :
1.7 Load-dependent start of delivery		-		1	

2.1 Timing device	n = rev/min	1000	2.41	1500		
	mm	1,3-2,1(1,0	-2,4)	(2,9-4,3)		
2.2 Supply pump	n = rev/min	400				
	bar (kgt/cm²)	2,4-3,	0	ar e e e e e e e e e e e e e e e e e e e		and the same of th
Overflow delivery	n = rev/min	500	150)			500
	cm ³ /10 s	55-138(40-	153)		55-138	8 (40-153)
2 3 Fuel deliveries	Company of the Compan				3. Dimen	tor assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	1595-1640	0	(10 0 00 0)		K	2221
	1560 1500	29,0-31,0	(18,0-26,0) (27,7-32,3)		KF	3,2-3,4
	1000		(25,7-30,3)			5,7-5,9
	600	22,5-25,5	(21,0-27,0)	- 111111	MS	1,2-1,4
				,	svs	max.3,6
	1				* FH	1,8-2,4
switch-off	a and a second control of the contro				A	9,0-14,0
elect.	400	bei 2,5 V	0		В	10,4-15,6
Idle stop	700	max. 2,0	and the second s		Observations	to a reasonal desiration of the second second second second second second second second second second second se
	415		(4,0-12,0)	- Antiques	* *opera	ting
End stop	400 500	min. 18,0 max. 24,0			strok	e (KSB)

2.4 Solenoid

max cut-n voltage xxx min. 10 V xxxxxxxxxxx rated voltage 12V.

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5.7w3

3. Edition

PES 6 A 90 D 410

RS 2569

RSV 350 - 1275 A0 B 1138 L

companyDaimler-Benz engine OM 352

62 kW (84 PS)

Ail test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,20-2,40) 2,25-2,35

Port closing at prestroke

Festoil-ISO 4113

Rotational speed	Control rod travel	Fuel delivery	Difference .	Cantrol rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
revimin	mm 2	cm / 100 strokes	om : 100 strokes 4	mm 2	cm //100 strokes	mm 6
1250	8,4-8,5	4,0 - 4,1	0,3(0,25)			
350	7,7-7,9	0,8-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rold travel mm		Interme	ediate rate	d speed	Control lever deflection in legrees 7	Lower rev. min 8	rated speed Control rod trave: mm	(3) To	rque control Control rod - travel mm
loose	800 x = 6	0,3-1,0 ,0				approx 35	350 350 670-730	7,3 7,7-7,9	1250 500 785	8,4-8,5 9,7-9,8 9,0-9,2
approx 72 2a	1405-1	300 = 7,4 435= 4,0 0,3 - 1,7					070-750			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ull+oad stop	6 Rotational- speed limitat		iel delivery aracteristics	Starting	fuel delivery 5	4a Idle stop	
Test oil to	emp 40°C (104°F) cm-//1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ^{2/1} 000 strokes 5	rev/min	cm-/1000 strokes	rev/min 8	Control rod travel mm
1250	40,5 - 41,5 (38,5 - 43,5)	1290-1300*	750 600	39,5 - 41,5 (37,5 - 43,5) 37,0 - 39,0 (35,0 - 41,0)	100	80,0-90,0 RW 15,8- 16,2 mm	350	8,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A and Governors

WPP 001/4 MB 3,8n1

4 . Edition

PES 4 A 90 D 410 RS 2570

RSV 350-1300 A 2 B 1126 DL

supersedes 8.80

Daimler-Benz

OM 314

55 kW (75 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

restoil-ISO 4113

(2,20-2,40) 2,25-2,35

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
reviene 1	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes ⁻	mm 2	cm v 100 strokes	mm 6
1300	9,9-10,0	5,2-5,4	0,3(0,45)			
350	8,7-8,9	1,2 - 1,8	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1) Upper rated speed rev/min			ediate rat	ed speed	4	Lower	3 Forque control		
Control rod travel	Control rod travel				Control-		Control rod travel		Control rod travel
mm	mm rev/min				deflection in degrees	rev/min	mm	revimin	mm
2	3	4	5	6	7	8	9	10	11
800	0,3-1,0				approx.	350	8,3	1300	9,9-10,0
χ	= 4,0				20	350	8,7-8,9	1050	10,3-10,6
1340-1	350=8.9	1				575-6	35=2,0	600	11,2-11,4
1420-1	450=4,0							450	11,6-11,7
	Control rod travel mm 2 800 X 1340-1 1420-1	Control rod travel mm rev/min 2 3	Control rod travel mm rev/min 2 3 4 800 0,3-1,0 X = 4,0 1340-1350=8,9 1420-1450=4,0	Control rod travel mm mm rev/min 2	Control rod travel travel mm rev/min 2	Control rod travel Control rod travel mm rev/min 2 3 4 5 6 Control-lever deflection in degrees 7 800 0,3-1,0 X = 4,0 20 1340-1350=8,9 1420-1450=4,0	Control rod Control rod travel mm rev/min 2 3 4 5 6 Control-lever deflection in degrees 7 800 0,3-1,0 X = 4,0 20 350 575-6 1340-1350=8,9 1420-1450=4,0	Control rod travel mm rev/min 2 3 4 5 6 7 Control-lever mm rev/min 8 9 Control rod travel mm rev/min 9 800 0,3-1,0 X = 4,0 350 8,7-8,9 1340-1350=8,9 1420-1450=4,0	Control rod travel mm rev/min 2 3 4 5 6 7 Control rod travel mm rev/min 2 3 5 0 8,3 1300 800 0,3-1,0 X = 4,0 1340-1350=8,9 1420-1450=4,0 Control rod travel mm rev/min mem rev/min mem rev/min segrees 7 2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	emp 40°C (104°F)	Rotational- speed limitat Note changed to)	ILJG1	el delivery aractenstics	Starting fi	uel delivery 5	4a) idi	e stop Control rcd
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm=/1000 strokes 7	rev/min 8	travel mm 9
1300	52,5 - 54,5 (50,5 - 56,5)	1340-1350*	600	50,0 - 52,0 (48,0 - 54,0)	100	80,0-90,0 16,3 16,7 mm R	-	

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 2 NPP 001/4 MB 11,4 h and Governors

3. Edition En

RQ 300/1100 PA 327-1

Daimler-Benz OM 407

147 kW (200 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Bump Settings

PES 6 P 110 A 820 LS 422

mm (from BDCZyl. 6

1100 9,6-9,7 10,30 - 10,50 0,4(0,8)	·
0.4(0.7)	
300 7,0-7,2 1,3 - 1,9 0,4(0,7)	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Control rod travel rev/min rev/m 2 3	Control rod travel mm 4	Control rod travel mm 5	rev/min	Setting prev/min	Control rod travel rnrn	rev/min	Control rod travel mm	rev/min	Control rod travel
600 13,0-14,0 60	13,5	8,6 4,0			6,1	300	min.7,5 6,0-6,2 390 =2,0	_	-

Torque-control travel

Speed regulation At 1145-1160 min -1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever op 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics (3b	Starting f Idle spee	Contral
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 6	rod travel cm ³ /1000 strokes / mm 7
1100	103,0 - 105,0 (100,0 - 108,0)			78,0 - 82,0 (75,0 - 85,0)	100	130,0 - 150,0

Checking values in brackets

2

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 5,7 y

1. Edition

En

PES 6 A 90 D 410 RS 2293 RQ 900 AB 1079 L

supersedes

company Daimer-Benz

engine. OM 352 A

82 kW (111 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel		Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
850	10,8+0,1	6,9 - 7,0	0,3(0,45)			
300	5,9-6,1	0,9 - 1,4	0,2(0,4)	·		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG ched	Control rod travel	Full-load s Setting po rev/min 3			rev/min		Control rod travel	Test spe	Control rod	rev/min	Control rod travel
	•	-	_	9,8 4,0 1000	905-910 940-950 0 - 1,0	-	_	-	-	~	-

Torque-control travel on flyweight assembly dimension a =

n

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ten	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics 3b	Starting for Idle spee	d Control rod travel
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
850	69,0-70,0 (67,0-72,0)	-	-	** 5 5		73,0-83,0 bei 14,6-15,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7v4

2. Edition

PES 6 A 90 D 410 RS 2569

ROV 300-1450 AB 1114 L

supersede&O.80 company.Daimler-Benz OM 352 engine: 81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1450	9,2-9,3	4,4 - 4,5	0,3(0,45)			
300	8,4-8,6	0,9 - 1,5	0,2(0,4)			
300	0,4-0,0	0,9-1,5	0,2(0,4)			
		3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed			Slidings	leeve travel
Degree of deflection of control	rev/min Control rod travel	travel /	ال ^ح	Degree of deflection of control		Control rod travel		Degree of deflection of control		Control re travel	od _	O.Gg	1
lever	mm	rev/min (2	_ \ I	lever	rev/min	mm (4	1	lever	rev/min	mm	(3)	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1450	15,2-17	,8	,				approx. 25	l	min.10	-	250	0,7-0,9
	8,5	1490-150	0					23	300	8,4-8	,6	650	3,8-4,0
approx.		1565-159 0 - 1,	5						550-	610=2	,0	1500	8,4
L								<u>3</u>			_		

Torque control travel a = 1 a 1

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		limitation intermediate speed	high idle s	very characteristics (5a)	idle	fuel delivery 6	Torque- travei	Control rod
rev/min	cm³/1000 strokes .	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9+0,1
1450	44,5 ÷ 45,5 (42,5 - 47,5)	1490-1500*	500	34,5 - 37,5 (32,5 - 39,5)	73,0-83,0 at 15,4 - 15,8 mm RW 220(80-240)	1450 1130 760 500	9,2 9,4 9,9 10,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP001/4 KHD 4,7 b 1. Edition

PES 5 A 80 D 410/3 RS 2579 RQV 300-1400 AB 1048 DL

1-3-5-4-2 je 72° $^{+}$ 0,5° ($^{+}$ 0,75°)

company: KHD F 5 L 912 47 kW (64 PS) at 2800 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.85-2.05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,4+0,	6,1-6,2	0,2(0,35)			
300	8,9-9,	1,0-1,6	0,2(0,3)			
<u> </u>				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Skidina s	leeve travei
deflection	rev/min Control	Control rod ta	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
I .	rod travel mm		of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm .
1	2	3	4	5	6	7	8	9	10	11
max.	1400	15,2-17,8	-	-	-	approx.		min.7,5	250 630	0-0,6
approx.	10,4 4,0 1850	1480-1490 1710-1740 0-1,0				390-490		1 5,9-6,1 max. 1,0		2,9-3,1 5,0-5,3 5,9
		, -				3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	rery characteristics 5a	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 48	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm 9
1400	62,5-63,5 (61,0-65,0)	1480-1490*	900 750	59,5-61,5 (57,5-63,5) 56,5-58,5 (55,0-60,0)	100	120,0-130,0 at 20,5-21, mmRW	51075 825	11,4+0, 11,5+0, 12,0+0, 12,4+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP CO1/4 MWM 8,8 a 1

1. Edition

PE 8 A 100 D 320 RS 3009

RQV 750 AB 995 R

supersedes companyMWM

engine: D, TD 232 V 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (1	95-2.15)	mm (from BDC)		<u> </u>	
Rotational speed	Control rod travei	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm -	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
710	9,6-9,7	9,0 - 9,2	0,3 (0,6)			
300	6,6-6,8	1,5 - 2,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	pper rated speed			Intermediate	rated spe	eed	Lower rated	•	Sliding sleeve travel		
1	rev/min Control rod travel	n sa AGI	18	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min ((2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3	rev/min	mm
1	2	3	_	4	5	6	7	8	9	10	11
approx. 22	8,0 4,0 825	750-755 780-790 0 - 1,0		-	-	-	- (3a)	-	-	650 700 750 800 824	0,6 2,7 5,0 8,0 11,0

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr		Rotational-speed (20) limitation intermediate speed	Fuel deliv	rery characteristics 5a	Starting Idle switchir	Torque- travel	control 5	
rev/min	cm³/1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	X-KAN KOROKAN	rev/min	trav el mm
1	2	3	4	5	6	7	8	9
710	90,0-92,0 (88,0-94,0)		-	-	100	15,7-16,3 mm RW	-	-
						9		

Checking values in brackets

1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 6,1 K 2

1. Edition

PES 6 A 85 D 410 RS 2592

RQV 300-1250 AB 1158 L

supersedes

combana: KHD

engine: BF 6 L 913

GMC-Fahrzeug 118 kW (160 PS) bei 2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (2	2,2-2,3	mm (from BDC)	at 9.0-	12.0 mm RW	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,5+0,1	8,5-8,6) ,3 (0,45)			
300	8,3-8,5	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stidings	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of ceffection of control		Control rod travel	Gilding	1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	approx		min.10,2 8,3-8,5		0,5-0,8 3,6-3,7
approx.	11.5	1290-1300				''	300	0,3-0,3		5,3-5,4
66		1375-1405 0 - 1,0				450 - 575			1250	8,1
						3a				

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed	(3)		Starting Idle switchir		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 48	rev/min	cm³/าย00 strokes	rev/min	cm³/1000 strakes	rev/min	travel mm
1	2	3	4	5	6	7	8	3
LDA	0,7 bar	1290-1300*	LDA 800	0,7 bar 84,5-87,5	100	108,5-118,5 at 19,0-		12,5+0, 13,2+0,
1250	84,5-85,5 (82,5-87,5)		(82,5-89,5)		21,0 mm RW	1000	13,2+0, 12,9+0,
1			LDA 500	0 bar 59,0-60,0 57,0-62,0)			1100	12,7+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 DAF 6,2 1 1

1. Edition

En

PE 6 A 85 D 320 RS 2546

RSV 250-900 A 7 B 2061 R

supersedes

company DAF

engine DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
900	10,5+0,	1 6,0-6,1	0,3(0,45		<u> </u>	
250	7,4-7,6	1,0-1,6	0,2(0,4)			
-						
	1		Ì			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 and max. = $3,0-4,0^{\circ}$.

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800 x	0,3-1,0 = 4,0	-	-	•	ca. 19	250 250	5,5 5,9-6,1	370 650	11,7-12 10,5-10	Г
6a. 53	9,5 4,0 1100	940-950 945-975 0,3-1,7					290-3	50= 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat.			Starting Idle	fuel delivery	5a Idle stop		
Test oil ten rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 stroke s 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
900	60,0-61,0 (58,0-63,0)	940~950*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

MPP 001/4 MB 5,70

6. Edition

PES 6 A 90 D 410 RS 2293 Z

RSV 575-1250 A 1 B 618 L

supersedes2.82

company Daimler-Benz

OM 352 A

107 kW (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

mm (from BDC)

Off Closing at press		2,13-2,23				0. /
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
To John	mm	cm³/100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
rev/min	2	3	4	2	3	6
1230	11,2+0,1	7,5 - 7,6	0,3(0,45)			
575	7,4-7,6	2,1-2,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

8 13 575	7,5	10	11
	1 / 7	_	
10 0/0	/,5		Ì
610 580-	1,9-2,1 640=2,0		
		610 1,9-2,1 580-640=2,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.			Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	74,5 - 75,5 (72,5 - 77,5)	1260-1270*		-	100	71,0-81,0 bei 13,8- 14,2 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Speed difference between 1.0 mm regulated and control-rod travel 4.0 mm at $n = 25 - 35 \text{ min}^{1}$.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 v 6 3. Edition

PES 6 A 90 D 410 RS 2569

RSV 575-1250 A 1 B 618 Eupersedes 2.82

company Daimler Benz

OM 352

85 kW (115 PS)

1 - 5 - 3 - 6 - 2 - 4 $0 - 60 - 120 - 180 - 240 - 300^{\circ} \stackrel{+}{-}0,5^{\circ} (\stackrel{+}{-}0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,20-2,40) Port closing at prestroke 2,25-2,35

Testoil-ISO 4113

mm (from BDC)

		Difference	Control rod	Fuel delivery	Spring pre-tensioning
travel	Fuel delivery		travel	1	(torque-control valve)
	300	cm³/		cm ³ /100 strokes	mm
	cm ³ /100 strokes	100 Strokes	1		6
2	3	4	2		
12.0+0	1 6.2 - 6.3	0.3(0.45)		
12,0					
1		1			
8,4-8,6	0,9 - 1,5	0,2(0,4)			
į			1		
	Control rod travel mm 2 12,0+0	Control rod travel mm cm³/100 strokes	Control rod travel mm	Control rod travel mm	mm cm ³ /100 strokes 2 12,0+0,1 6,2-6,3 0,3(0,45)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rev/min	Control rod travel	Intermediate Degree of deflection of control lever		Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travei mm	que control Control rod travel mm
loose	800	0,3-1,0		13		ca. 28	575	6,5	
	X =	3,75					100 650	min. 19 0 - 1	
5ca.58		260 = 11,0 295 = 4,0 0.3- 1.7	:					35 = 2,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		I delivery racteristics	Starting idle	fuel delivery		stop
Test oil temp rev/min		Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7		Control rod travel mm 9
1230	61, 5- 62,5 (59, 5 - 64, 5)	1250-1260*	-		100	80,0-90,0 17,1-17,5 mm RW	-	-

Checking values in brackets

Speed difference between 1.0 mm regulated and control-rod travel 4.0 mm at $n = 25 - 35 \text{ min}^{1}$.

1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 0MB 8,1 b 1

1. Edition

PES 6 A 90 D 410 RS 2502

RQV 300-1050 AB 1157 L

supersedes

companyOM_Fiat engine 8365.05.590 Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25 Port closing at prestroke mm (from BDC) Spring pre-tensioning (torque-control valve) Rotational speed Control rod Fuel delivery Difference Control rod **Fuel delivery** cm³/ 100 strokes cm³/100 strokes cm³/100 strokes mm rev/min mm 11,5+0, 7.6 - 7.70,3(0,45)1050 0.2(0.4)300 8,2-8,4 0.9 - 1.5

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidina s	leeve travel
deflection	rev/min Control	Control rod (18)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	rod travel mm	rev/min (28)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1110	15,2-17,8	-	-	-	approx.	100	min. 9,8	250	1,0-1,2
	10,5	1090-1100	†			20	300	8,2-8,4	520	4,2-4,4
approx.	4,0	1170-1200	1				335-	440= 2,0	780	5,6-5,8
10,	1300	0 - 1,0					675	max.1,0	1050	7,8
						3a			,	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem			Fuel delivery characteristics (56) high idle speed (5b)		Starting Idle switchir		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1050	76,0-77,0 (74,0-79,0)	1090-1100*	650	73,0-76,0 (71,0-78,0)	100	128,0-148,0 at18,2- 18,6 mm RW	500 755	11,5+0, 11,9+0, 11,8+0, 11,5+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 EIC 3,9 c

1. Edition

PES 4 A 90 D 320 RS 2634

RSV 300-1025 A 1 B 2153 R

1 - 2 - 4 - 3 je $90^{\circ} + 0.5^{\circ}$ (+ 0.75°)

supersedes_

company Eicher

EDL 4-2 65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,2-2,3 Port closing at prestroke (2,15-2,35)

		(2,10-2,00)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1025	12,6+0,1	8,1 - 8,2	0,2(0,45			
300	10,9+0,2	4,4 - 4,9	0,2(0,4)	:		
					,	
			1			

Adjust the fuel delivery from each obtlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control	rev/min	Control rod travel	rev/min	Control rod travel
lever 1	rev/min 2	mm 3	lever 4	rev/min 5	mm 6	lever 7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	approx	300	10,5	1025	12,6+0,
approx	x =	2,0				16	100 300	min.19,0 10,9-11,	500 880	13,2+0, 12,9+0,
46 5	11,6 4,0 1255	1065-1075 1070-1100 0,3-1,0					1	455=2,0	000	12,9,0%

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		l delivery racteristics	Starting Idle	fuel delivery	Sa) krit	stop
Test oil temp rev/min 1	. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min 3	rev/min	crn ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min 8	Control rod travel mm
1025	81,0-82,0 (79,0-84,0)	1065-1075*	750	83,5-86,5 (81,5-88,5)	100	19,0-21,0 mm RW	-	-
			500	77,0-79,0 (75,0-81,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 ALS 3,8a 2. Edition

En

PES 4 A 90 D 320 RS 2641

RSV 350-1200 A 2 B 2158 R

supersedes 6.82

company Alsthom-Atlant

engine -

50 kW (68 PS) AGROM-N 4-72

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 mm (from BDC)

		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
2	3	4	2	3	6
8,4-8,5	5,4-5,5	0,3(0,45)			
5,9-6,1	0,9-1,5	0,3(0,4)			
	control rod travel mm 2 8,4-8,5	Control rod travel mm cm³/100 strokes 2 3	travel cm³/100 strokes 2 cm³/ 8,4-8,5 5,4-5,5 0,3(0,45)	Control rod travel mm cm³/100 strokes 3 8,4-8,5 5,4-5,5 Difference cm³/100 strokes mm 2 0,3(0,45)	Control rod travel mm cm³/100 strokes 2 8,4-8,5 Control rod travel cm³/ 100 strokes mm cm³/100 strokes 2 0,3(0,45)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower				que control
Degree of deflection of control lever	1	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•	-	approx	350	5,5	1200	8,4+0,1
approx		3,0 				17	350	min.19,0 5,9-6,1	450 600	8,9+0,2 8,4+0,2
44 ⑤	7,4 4,0 1425	1240-1250 1260-1290 0,3 - 1,0			_		395- 500	455=2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	Sa) Idle	stop
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	Control rod travel mm
1200	54,0-55,0 (52,0-57,0)	1240-1250*	450	41,0-43,0 (39,0-45,0)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 MB 5,7 q 4 2. Edition

En

PES6A 90 D 410 RS 2293 RSV 350-1300 AOB 1101 DL

supersede8.81 company: Daimler-Benz

engine: OM 352 A

110 kW (150 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,1-2,3)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1300	10,6+0,1	7,0 - 7,1	0,3(0,45)			
350	6,9-7,1	0,9 - 1,5	0,2(0,4)			
İ						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	(3) To	rque control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod trave!
1	2	3	4	5	6	7	8	9	10	11
loose	800 0,	1	-	-	-	approx.	350	6,5	1300	0,6+0,1
approx.		,0				18	100 350	5 0 7 1	800 500	0,9+0,2 1,3+0,1
55 (5)	4,0	1340-1350 1375-1405 0,3-1,7						5,9-7,1 25=2,0mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

				<u></u>				
2 Full-to	ad stop	6 Rotational- speed limitat.			Starting Idle	fuel delivery	(5a) Idl	stop
Test ail temp. 40°C (104°F) rev/min cm³/1000 strakes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1300	70,9 - 71,0 (68,0 - 73,0)	1340-1350*	500	62,0 - 64,0 (60,0 - 66,0)	100	80,0-90,0 at 14,6- 15,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 4,7 c

1. Edition

PES 5 A 80 D 410/3 RS 2603

and Governors

RS 325/1650 A 0 B 2087 L

supersedes-

company: KHD

engine: F 5 L 912 63 kW (85 PS)₁ at 3300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)			
]	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	(3) Tor	que control
Degree of deflection of control			Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	ww	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	-	approx.	325	8,8	-	-
annnov	•					18	100 325	min.13,6 8,7-8,9	:	
approx.	8,9	1690-1700					550-	90 =2,0		
(5)	4,0 1900	1740-1770 0 - 1,0	ľ		_		600	max.1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	50,5-51,5 (49,0-53,0)	1690-1700*	•	-		-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 MB 5,7 v 9

1. Edition

PES 6 A 90 D 410 RS 2596

RSV 350-750 AOB 741 L

En

supersedes

company Daimler-Benz

engine: 0M 352 A 65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDC)

Rotational speed	travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	6,6 - 6,7				
100	17,4+0,4	7,1 - 8,1				
	,					
						<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	500	0,3-1,0	-	-	-	approx.	350	8,1	_	-
approx.	x =					14	100	min.19,0		
26 5	12,0 4,0 850	740-750 780-795 0,3-1,7				A .7 =	360-42	0 = 2,0		

Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat,	(3a) Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	65,5-66,5 (63,5-68,5)	740-750*	-	-	100	71,0-81,0 bei 17,4- 17,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11.0 u 4

Edition

En

PE 6 P 120 A 720 RS 7001

RSV 350-1100 P 1/481

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

supersede9.82

company Saab-Scania

DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm

For Closing at pres	ii O N C	(4.95-5.15)	(0 0 0		(4.35-4.55)	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	13,2+0,1	20,7 - 20,9	0,5(0,9)			3,3 <u>+</u> 0,1
350	4,5-4,6	1,6 - 2,0	0,3(0,6)			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 To:	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/mเก	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
1oose	800	0,3 - 1,0	-	-	_	ca. 25	350	4,0	-	-
	x =	5,5	;			·	100	min.20,	}	
ca.58	12,2 4,0 1350	1140-1150 1195-1225 0,3-1,7					350 415-	4,5-4,6 475 =2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop			Starting Idle	fuel delivery	Sa Idle stop		
Test oil temp rev/min	cm ³ /1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 stroke s	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	207,0-209,0 (204,0-212,0		600	198,0-204,0 (195,0-207,0		210,0-260,0 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to $2,9-3,1\,$ mm.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 q 8

1. Edition

PES 4 A 85 D 410/3 RS 2610

RSV 325-1150 A 8 B 2163 L

supersedes-

company KHD

55 kW (75 PS) bei 2300 min 1 Schlepper DX 80

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed		Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	9,1-9,3	1,7 - 2,3	0,2(0,4)			
1				I		

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Torque curtrol	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	_	approx.	325	8,7	1150	11,3+0,1
	x = 4	•5				18	100	min.19,0	500	12,0+0,1
approx.	! •						325	9,1-9,3	900	11,6+0,2
54 5	10,3 4,0 1400	1190-1200 1245-1275 0,3-1,7					470-9	30= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	1(-) ()			Starting	fuel delivery	5a Idle stop	
Test oil temp rev/min 1	cm ³ /1000 strokes	Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	68,0-69,0 (66,0-71,0)	1190-1200*	500	59,0-62,0 (57,0-64,0)	-	-		-

Checking values in brackets

*1 mm less control rod travel than col. 2

10,82

WPP 001/4 MB 5,7 o 1

2. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 575-1250 A 1 B 618 L

supersedes 11.80

company engine Daimler-Benz

OM 352

88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

mm (from BDC)

Potational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1230	10,5+0,1	6,1-6,2	0,3(0,45			
575	6,4-5,6	1,1-1,7	0,2(0,4)			
]					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que controt
Degree of deflection of control		Con., ol rod travel	Degree of deflection of cor.trol		Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
!ever	rev/min	шш	lever	rev/min	ww	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Toose	800	0,3-1,0	_	-	-	ca. 28	575	5,5	-	-
	x =	5,0					100	min.19,0		
Sa.58	9,5	1250-1260	: 				580-6	10 = 2,0 **		
	4,0	1275-1295					650	max.1,0		

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop			Starting Idle	fuel delivery	5a) Idle stop		
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	CHRIZOOR STROXESXX	rev/min 8	Control rod travel mm
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	14,7-15,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.82

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 PER 10,0h 2. Edition

En

estoil-ISO 4113

PES 8 MW 100/720 RS 1021 0 403 448 116

RQV 250-1300 MW 30-1 -

supersede 6.82 company: Perkins engine: V 8.640 V 160 kW (218 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2 0 -45 -90 -135-180-225-270-315

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

	1	3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1300 12	,0+0,1	9,0 - 9,2	0,35(0,6)			
250 8	,1-8,3	1,35-1,75	0,35(0,55)		
800 12	,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
of control lever	rod travel	mm rev/min (2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca.14	250	8,1-8,3		
	1550	0 - 1,0					100	min.9,6		
ca.64	11,0	1340-1350								
	4,0	1445-1475				270 - 600 ③				

Torque control travel a =

шШ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	very characteristics 5a peed (5b)	Starting Idle switchin	• 0	Torque- travel	control 5
rev/min		rev/min 4a	rev/min	cm ³ /1000 strokes		cm ³ /1000 strokes	rev/min	travel mm
1300	90,0-92,0	1340-1350*	800	89,5-93,5	100	min. 140.0	8	9
1500	(88,0-94,0)	1545 1555		(87,5-95,5)				
					100-	-180 (80-200)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing and TDC markings

camshaft between port closing and TDC

at control-rod travel 9,0 - 12,0 mm

15°

Com.-No.

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 PER 10,0 n

1. Edition

En

PES 8 MW 100/720 RS 1106 0 403 448 117 RQV 250-1300 MW 30-1

companyerkins

engine: V 8.640 V

160 kW (218 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2 0 -45 -90 -135-180-225-270-315

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,00-3,10
Port closing at prestroke (2.95-3.15) mm (from BDCRW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,7+0,1	9,0 - 9,2	0,35(0,6)			
250	6,4-6,6	1,35-1,75	0,35(0,55			
800	10,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(1a) (2a)	Degree of deffection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	(1)
1	2	3		4	5	6	7	8	9	10	11
max.	1300 1550	15,2-17 0 - 1					ca.14	100	6,4-6,6 min.8,1 550 = 2,0		
ca.64	9,7 4,0	1340-13 1425-14						450-			
							3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr		Rotational-speed 2b limitation intermediate speed	Fuet delivingh idle s	rery characteristics (5a)	Starting Idle switching	•	Torque-control 5 travel Control ro travel		
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
1300	90,0-92,0 (88,0-94,0)	1340-1350*	800	89,5-93,5 (87,5-95,5)	100	min. 140			
					100-	180 (80-200)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

Port closing and TDC markings

*camshaft between port closing and TDC

at control-rod travel 9,0 - 12,0 mm

15°

<u>Com.-No.</u> ...117

G7

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 3,9c1 3. Edition

Testoil-ISO 4113

VA 4/100 H 1250 CR 67-1 CR 67-1 P

0 460 304 193 0 460 304 194 supersedes 82

c mpanyIHC

engine D 239 TD 8 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Pre-stroke setting 0,5 mm ± 0,04

Setting of the pointer at a stroke of 1 mm in relation to outletere setting see reverse side

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	4,5-5,5	mm		
1.2 Supply pump pressure	800	5,2-5,7	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	69,5-70,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air			cm ³ /1000 strokes		
pressure 1 4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
15 Start 196 bar	100	mind.90,0	cm ³ /1000 strokes		1
1.6 Full-load speed regulation	1330	31,0-39,0	cm ³ /1000 strokes		

2.1 Timing device	rev/min	200-330			1100 1050
	mm	Beginn 400 1,1-2,1(0,8-2,4)	800 (4,2-5,8)	1000 6,1-7,1(5,8-7,4)	1100-1250 6,9-7,6(6,6-7,9)
22 Supply pump	rev/min	200	800		1250
	kp/cm²	2,1-2,6(1,9-2,8)	(5,0-5,9)		7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500			1250
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

Speed control lever	Delivery lever	rev/min	cm ³ /1000 stroke	s	Charge-air pressure kp/cm²
End stop	Futt	1370-1420 (1350-1440) 1330 1280-1300 1250 800 500	0 Beginn 66,0-69,0 71,0-74,0	(30,0-40,0) (65,0-70,0) (69,0-71,0) (70,0-75,0)	
	Stop	1250	0		
idle stop	Fulf	400-450	0		
		350		(11,5-19,5)	
	Start	100	mind.90,0		
End stop		220-300			

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension ₹ 1,8 mm Dimension ₹ 24,6 mm

1. Edition

PE10P110A920/5 LS 3073

RQ300/1150PA535

supersedes -

company: BF10L413F

265kW (360 PS)1

bei 2050 min

bzw. 259 kW (352 PS) bei 2300 min

(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

A. Fuel Injection Pump Settings

1-10-9-4-3-6-5-8-7-2

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
800	11,6+0,	1 13,8-14,0	0,4(0,8	9		
300	6,9-7,	1 1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-load s	peed re	gulation		Idle spec	ed regula	ition		Torque o	
PRG che	ck (1)	Setting po	int	Test spec	cifications (4)	Setting p	oint	Test spe	cifications (5)		(3)
evinin	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
/00	19,2-20,9	700	20,0	9,7 4,0	1195-1205 1220-1250	300	7,0	100 300	min.8,5 6,9-7,1	L	10,7-10,8 11,6-11,8
VH=	max.46°			1350	0-1,0			340-	380= 2,0		11,5-11,7 11,2-11,4
				·							

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for Idle spee	uel delivery d Contre
rev/min	cm ³ /-1000 strokes 2	rev/min	rev/min 4	cm³/–1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
LDA 800 LDA 1025	0,9 bar 138,0-140,0 (135,0-143,0) 0,9 bar 134,0-138,0 (131,0-141,0)	-	LDA 1150 LDA 500	0,9 bar 121,0-125,0 (118,0-128,0) 0 bar 85,0-89,0 (82,0-92,0)	100	115,0-140,0

Checking values in brackets

Test at n =

รกก

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PE10PLS3073 with. PA535	0,55	0,90	11,2-11,3 11,6-11,7
		0	9,4-9,5
		0,39	10,1-10,3
! !			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 i

1. Edition

PE 10A 95D 610/4LS 2448

ROV 300-1250 AB 1105L-

supersedee

1-10-9 -4- 3- 6- 5- 8- 7- 2 0-27- 72- 99- 144- 171- 216- 243- 288- 315+ $0,50^{\circ}$ ($\frac{1}{2}$ 0,75°)

company KHD
engine BF 10L 413 F
294 kW (400 PS)
bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strolles 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	11,3-11,	4 11, 4- 11,6	0,3(0,6			
300	6,1-6,3	1,1-1,7	0,3(0,5			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	(ta)	Degree of deflection		Control rod travel	Degree of deflection of control		Control rod travel	-	0
of control	rod travel	mm rev/min	(2a)	of control lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	$\overline{}$	4	5	6	7	8	9	10	11
max.	1300	15,2-17	,8	-	-	-	ca. 13	300	min. 7,7 6,1-6,3 735 = 2,0		
ca. 65	10,3 4,0 1500		90				320-400 3a			1250	7,0

Torque control travel a

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	rery characteristics 5a speed 5b	Starting Idle switchin	•	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm 9 +0,1
LDA 1250	0,8 bar 113,5-115,5	1290-1300*	LDA 900	0,8 bar 119,0-122,0	100	129,0-139,0	1250 1100	-
	(111, 5–117, 5)		LDA 1100 LDA 500	0,8 bar 116,0-121,0 0 bar 68,0- 71,0	Magi	220 (80-240) net 24 V	900	11,0

Checking values in brackets

* 1 mm less control rod travel than col 2

Checking Page 2.

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting		Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
2448 with1105 L	0,8 bar	0,565 0,430	11,0	- 11,7 - 11,1 - 10,3
		0,430	1	- 9 , 4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Checking values

900 1/min 0,8 bar (117,0 - 124,0)

1100 1/min 0,8 bar (114,0 - 123,0)

500 1/min 0 bar (66,0 - 73,0)

40

WPP 001/4 KHD 12,7c1

1. Edition

engine

En

PE 8 MW 100/720 LS 1010 RQ 300/1250 MW 32 0 403 548 004 supersedes .

company KHD

BF 8 L 413 F 235 kW (320 PS)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 0 -45 -90 -135-180-225-270-315 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pamp Settings

3,10-3,20 rt closing at prestroke (3,05-3,25)

mm (from BDC)RW 9,0-12,0

Out Closing at bisso	(3,05-3,25)	•	(11 3,0-12	.,0	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	12,2+0,1	13,0 - 13,2	0,35(0,6			
300	6,4-6,6	1,25 - 1,65	0,35(0,5	5)		
850	12,7+0,1		0,5 (0,7)		
500	9,7+0,1	4	0,35(0,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG chec	Control rod travel	Full-load s Setting po rev/min		Test spec Control rod travel	rev/min	Idle spee Setting p rev/min	Control rod travel	Test spe	cifications 5 Control rod travel mm	Torque o	Control rod (3)
600 1500	19,2-20,8	60 VH =	20,0 46°		1295-1310 1345-1375		6,5	100 300	8,1 6,4-6,6 415 = 2,0	850 950 1200	12,7+0,1 12,4+0,2
		<u> </u>	<u> </u>				<u> </u>	1205	1210 min	<u> </u>	1 mm less control

Torque-control travel on flyweight assembly dimension a =

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Speed regulation: At

mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever op 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for Idle spee	Control
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
LDA 1250	0,7 bar 130,0-132,0 (128,0-134,0)		LDA 850 LDA 500	0,7 bar 130,5-134,5 (128,5-136,5) 0 bar 84,5-86,5 (82,5-88,5)	100	136,5-146,5 (133,5-149,5)

Checking values in brackets

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure ≈	bar	Gauge pressure = bar	mm (1)
Ppe.LS1010	0,7 bar			12,7 - 12,8
RQMW32			0,3	11,9 - 12,0
			0,23	10,4 - 10,6
; 				
i				

Notes

(1) when n =

rev/miri and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP001/4 SCL 7,4a 1. Edition

PES6A95D410RS2614

RSV325-1100A1B2177L

supersedes

company:

engine-

Schlüter SDMT 112 W6

Schlepper

110kW (150PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,75-1,95)

mm (from BDC) bei 9,0-12,0mm RW

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,5+0,	10,4-10,6	0,3(0,6)			
325	8,7-8,	9 2,4- 3,0	0,3(0,5)			·
			-			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0 (=3,75	-	-	_	approx 22	325	8,3	1100 500	12,5+0 13,1+0
approx							100 325	min.19, 8,7-8,9	1	12,7+0
55 5	11,5 4,0 1380	1215-124	5					605=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.				fuel delivery	(5a) Idle	e stop
Test oil temp rev/min 1		Note: changed to rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm 9
LDA 1100	0,7 bar 104,0-106,0 (102,0-108,0)		LDA 700 LDA 500	0,7 bar 108,5-111,5 (106,5-113,5) 0 bar 73,5-76,5 (71,5-78,5)	100	179,5-189, bei 19,5 - 21,0mm RW	5 -	<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test at n = fev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6ARS2614 with.A1B2177L	0,35	0,70 0 0,16	12,4-12,5 13,1-13,2 11,0-11,1 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

G17

n 🏅 😘

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 KHD 9,6 h

1. Edition

En

RO 300/1250 AB 1046 DL PE 6 A 95 D 410 LS 2450

1 - 6 - 5 - 4 - 3 - 2 $0 - 75 - 120 - 195 - 240 - 315^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersedes -

KHD company F 6 L 413 F

(1) 130 kW(176 PS), bei 2500 min

(2) 141 kW(192 PS)

bei 2500 min

(3) 120 kW(163 PS) bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers A. Fuel Injection Pump Settings

(1,95-2,15)Port closing at prestroke

mm (from BDC)

· · · · · · · · · · · · · · · · · ·		,00-2,10			· · · · · · · · · · · · · · · · · · ·	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	9,5-9,6	8,5 - 8,8	0,3(0,6)			_
,						
300	5,9-6,1	0,9-1,4	0,3(0,5)			
				1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-load s Setting po		_	cifications (4)	Idle spec	oint		cifications (5)	Torque c	(3)
rev/min	Control rod travel mm	rev/min 3	Control rod travel mmm 4	Control rod travel m:rm	rev/min	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		Control rod travel mm
600	15,6-16,4	600	16,0	8,5 4,0	1295-1310 13 <i>5</i> 5-1365	300	6,0	100 300 350- 450	min.7,5 5,9-6,1 890= 2,0 max. 1,0	1250 1080 965 600	9,5-9,6 9,6-9,9 9,9-10,1 10,1-10,2

Torque-control travel on flyweight assembly dimension a = 0,3 mm

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics 3b	Starting fi Idle spee	uel delivery 6
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
1250	85,0 - 87,5 (83,0 - 89,5)	600	1000	85,0 - 88,0 (83,0 - 90,0)	100	120,0 - 130,0
	7		700	86, 5 - 89, 5 (84, 5 - 91, 5)		

Checking values in brackets

B. Governor Settings

Checkin PRG che	_	Full-load Setting p		-	cifications (4)	ldle sper Setting p	_		cifications (5)	Torque	control 3
rev/min	Control rod travel mm	rev/min	Control rod travel rnm 4	Control rod travel mm	rev/min	rev/min 7	Control rod travel mm	rev/min 9	Control rod travel mm	rev/min	Control rod travel
600	15,6-16,4	600	16,0	8,9 4,0	1295-1310 1340-1370	2	6,0	100 300 350 450	min. 7,5 5,9-6,1 390=2,0 max.1,0	1080 965	9,9-10,0 10,0-10,3 10,3-10,5 10,5-10,6

Torque control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation A1295-1310 min⁻¹

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104 F)	Control rod stop	Fuel deli	very characteristics	36)	Starting fuel delivery		
rev/min	cm ⁴ /-1000 strokes	revimin 3	rev/min	cm³/~1000 strokes 5		rev/min	rad travel cm 1/1000 strokes / mm 7	
(2) 1250	91,5-93,5 (89,5-95,5)	600	1000	91,0-94,0 (89,0-96,0)		100	120,0-130,0	
 i			700	91,5-94,5 (89,5-96,5)		<u>!</u> :		
;	! ! :						· · · · · · · · · · · · · · · · · · ·	

Testoil-ISO 4113

(3)

B. Governor Settings

Checkin	g of slider	Full-load	speed re	gulation	_	Idle spec	ed regula	ation	_	Torque o	control
PRG che	ck ①	Setting po	oint	Test spec	cifications (4)	Setting	point	Test spe	cifications (5)	ļ.	(3
rev/min	Control rod travet mm	rev/min	Control rod travel	Control rod travel mm	rev/min	rev/min	Control rod fravel mm	: rev/min	Control rod travel	i rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	TT	12
600	15,6-16,4	600	16,0	8,0 4,0	1295-1310 1320-1350			300	min.7,5 5,9-6,1 390 =2,0 tax. 1,0	965	9,0-9,1 9,1-9,4 9,4-9,6 9,6-9,7

Torque control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation A1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	3	Starting f	tuel delivery
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes / mm 7
(3) 1250	81,5-83,5 (79,5-85,5)	600	1000 800	77,5-81,5 (75,5-83,5) 78,5-82,5 (76,5-84,5)	•	100	120,0-130,0

2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,2 k 6. Edition

En

PE 5 A 85 D 320 RS 2546

RQ 250/1300 AB 1023 R EP/RSV 250-1300 A 1 B 2025 R supersedes 12.80 D A F company DF 615

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Porticiosing at prestroke

(2.10-1.30)

KW mm (from BDC

•	```	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		المستحدات المارينيسا يبها		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
i revimin	mm	cm ³ /100 strokes	100 strokes	i mm	cm ³ /100 strokes	mm
11	2	3	4	2	3	6
1000	10,4+0	,1 5,5-5,6	0,3(0,4	5)		
				į.		
		4.5.00	0.0/0.4	•		
250	8,1-8,3	1,5 - 2,0	0,2(0,4	.);		
			•	•		
					•	and the second s

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Checkini	g of stider	Full load	speed re	gulation		idle spec	ed regula	ation		Torque	control
		Setting p	oint	Test spe	cifications	Setting p	ooint	Test spe	cifications	1	
rev/min	Control red travel mm 2	rev/min	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min	Cantrol rod travel imm i 8		Control rod travel mm 10	rev/min	Control rod travel mm 12
550	19,6-20,4 VH max. =		1	9,4 4,0 1500	1345-1360 1425-1455 0 - 1,		6,5	250	min. 9,7 8,1-8,3 370 =2,0 max. 1,0	-	-

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever np=40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting f	uėl delivery
rev/min 1	cm³/-1000 strokes	rev/min 3 .	rev/min	cm³/-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1000	55,0-56,0 (53,0-58,0)	·			100	113,5-123,5 19,5-21,0 mm RV

Checking values in brackets

8.82

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. 0-7000 Stuttgart 1. Printed in the Federal Republic of Germany imprime en Republique Federale 3 Allemagne par Robert Bosch GmbH.

B. Governor Settings

EP/RSV..2025 R

1 Upper Degree of deflection of control lever	rated speed	Control rod travel mm	Intermediate Degree of deflection of control lever	Control rod travel mm	Lowe Degree of deflection of control lever	rev/min	ed Control rod travel mm 9	3 Tar	que control Control rod travel mm
loose	800 X =	0,3-1,0			ca.21	25 J 25 O	5,5 5,9-6,1	1000 500	
ca.67	9,2 4,0 1550	1340-1350 1380 - 1410 0,3 - 1,7		 			530=2,0	250	

The numbers denote the sequence of the test

C. Settings for Fuel Injection Pump with Fitted Governor

	ad stop 0.40°C (104°F) cm³/1000 strokes 2	6 Rotational-speed limitat Note changed to rev/min 3		el delivery tracteristics cm ¹ /1000 strokes 5	ldle	fuel delivery cm ³ /1000 strokes 7	(5a) Idle rev/min 8	Stop Control rod travel mm 9	
1000	55,0-56,0 (53,0-58,0)	1340-1350*	6 a)		100	113,5=123, 19,5 - 21,0 mm RM			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

1 Upper Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate Degree of deflection of control lever	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	トレン	Control rod travel
	,						·		
5									,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	tuel delivery	9	stop
Test oil tem revimin	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7		Control rod travel mm 9
,	2							
		·						
								<u> </u>

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 6,0 g

6. Edition

PES 6 MW 100/320 RS 1004

RQV 300 ... 1400 MW 6 R

Komb. 0 403 446 194

0

Testoil-ISO 4113

company:Volvo engine: TD 60 B

1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{pmatrix} 2,8-2,9\\ (2,75-2,95) \end{pmatrix}$ mm (from BDC) be i RW = 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,2	8,35 - 8,55	0,35(0,6)			
300	5,2-5,4	0,93 - 1,35	0,35(0,55)		
500			r,5 (0,7)			
1400			0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection of control	rev/min Control rod travel	Control rod (la) travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	um m	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
	-	3	4	2	6	<u> </u>	8	9	10	11
approx.	1400 1700	15,2-17,8 0,0-1,0				8-16	100 300 420-	mind.7,0 5,2-5,4 480 = 2,0	1450	
64 + 4	10,7 4,0	1440-1450 1550 - 1580	1			(3a)	120	100 2,0	430- 500	= 2,8 1,3 - 1,4

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics (5a)	Starting idle switchir	,	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min 6	cm³/1000 strokes	rev/min 8	travel mm 9
LDA 1000	0,67 bar 83,5-85,5 (81,5-87,5)	1440-1450*	LDA 1400 LDA 500	0,67 bar 85,0-89,0 (83,0-91,0) 0 bar 48,0-50,0 (46,0-52,0)	100 300	mind. 120 9,3-13,5 (7,0-16,0)		

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

Test at n =

ናበር

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
Ppe. RS1004 with MW 6 R	0,67	0,21	10,6 - 10,8 9,7 - 9,9
		0,27	10,3 - 10,5

Notes

(1) when n ?

rev/mili and gauge pressure

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0u2

2. Edition

PE 6 P 120 A 720 RS 7001

RQ 250/1000 PA 615

supersede 5.81 $_{\text{company}} \underset{-}{\text{Scania}}$ DN 11 151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

to FD 052:

 $4.4 - 4.5 \, \text{mm}$ (4,35-4,55)

* from FD 141: 5,0 - 5,1
Port closing at prestroke (4 95-5, 15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1000	11,3+0,	1 18,6 - 18,7	0,5(0,9)			3,3 [±] 0,1 **
250	4,0-4,2	0,9 - 1,3	0,5(0,8)		•	(3,0 - 3,5)
			1			

Adjust the fuel delivery from each outlet according to the values in Due to smoothing of the sealing edge, the spring tension with a new B. Governor Settings must be adjusted to 3,0 - 3,1 mm.

Checking	g of slider	Full-load	speed re	gulation	!	idle spec	ed regula	ition		Torque o	control
	Control rod travel	Setting por	Control rod travel mm		critications Control rod travel mm 6	Setting prev/min	Control rod travel		cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
600	15,6-16,4	600	16,0		1045-1060 1105-1135		4,1		min. 5,6 4,0-4,2	_	-
	5						1	300-	340=2,0mm		
		1	1			1	* 1	1			

Torque-control travel

Speed regulation A1045 - 1060 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ter	lelivery on control lever mp. 40°C (104°F)	Control rod stop Fuel deliver		ery characteristics	Starting fuel delivery		
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm³/100 strokes 7	
1000	185,0 - 187,0 (182,0 - 190,0)	-	600	166,0 - 170,9 (163,0 - 173,0)	100	240,0 - 290,0 20-21 mm RW	
Checking	values in brackets					10.82	

10.82

Geschaftsbereich KH. Kundendienst. Kfz Ausrustung. 1980 by Robert Busch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Pepublique Federale d Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,6 a 3. Edition

PES6P110A720RS3105

ROV275-1150PA642

supersed & 82 company IVECO-UNIC 8220-22 engine 176 kW (239 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC) Port closing at prestroke (3,15-3,35) Spring pre-tensioning (torque-control valve) **Fuel delivery** Difference Control rod Fuel delivery Rotational speed Control rod cm³/ 100 strokes cm³/100 strokes cm³/100 strokes rev/min mm 0,4(0,8)11,7+0,1 10,0-10,2 1150 0.4(0.7)5,3-5,5 0.9 - 1.5275

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
	rev/min Control rod travel	Control rod (la travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)	lever	rev/min 5	mm (4)	lever	rev/min	mm (3)	rev/min 10	mm 1t
1	12	3	ļ -		 	 '				
max.	1190	15,2-17,8	-	-	-	approx	100	min. 6,9	225	D,4-0,7
approx.	10,7	1190-1200 1280-1310				11	275	- , - ,		3,5-3,8 5,2-5,5
60	4,0 1400	0-1,0				280-375		1	150	8,0
						3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed (2b) limitation intermediate speed rev/min	high idle s	pery characteristics (5a) peed (5b) cm³/1000 strokes	Starting Idle switchin	ng point	Torque- travel	control 5 Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 100,0-102,0 (97,0-105,0)	1190-1200 *	LDA 400	0 bar 87,0-89,0 (84,0-92,0)	100	160,0-180,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6PRS3105 with PA 642	0,23	0,70 0 0,21	11,3-11,4 11,7-11,8 10,5-10,6 10,8-11,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

WPP 001/4 MAN 9,7 n 3. Edition

En

PES 6 A 95 D 410 RS 2128

RQ 200/1100 AB 860 DL

supersedes 8.82
company RABA u. Dae Woo
engine D 2156 MTN 5
188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

1,95-2,05

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,3+0,1	12,7-12,9	0,3 (0,6)	<u> </u>		
200	5,9-6,1	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load s	•	•		Idle spec	-			Torque control		
PRG che rev/min t	Control rod travel	Setting por rev/min 3	Control rod travel mm	Test spec Control rod travel mm 5	rev/min	Setting prev/min	Control rod travel	revimin 9	Control rod travel mm	rev/min	Control rod (3) travel mm	
600	19,2-20,8	600	20,0	11,3 4,0	1145-1160 1195-1225		6,0	100 200 310-3	min.7,4 5,9-6,1 50 = 2,0	600 1015	12,3-12,4 12,8-12,9 12,6-12,8 12,3-12,6	
	control travel ght assembly dimer	nsion a =	0,2	l	Spr	ed regula			.60 min ⁻¹	<u> </u>	1 mm less contro rod trave	

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever p. 40°C (104°F)	Control rod stop 33	Fuel deliv	ery characteristics (3b)	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7	
LDA 1100	0,7 bar 126,5-128,5 (124,5-130,5)	200	LDA 800 LDA 500	0,7 bar 131,0-134,0 (129,0-136,0) 0 bar 81,5-85,5 (79,5-87,5)	100	151,5-161,5 bei 16,2-16,8 mm RW	

Checking values in brackets

10.82

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel: difference mm (1)
	Gauge pressure - Gar	Gauge pressure - Dai	
PES6ARS2128	0,25		12,1 - 12,2
with .AB860DL		0,70	12,8 - 12,9
		0	10,1 - 10,3
		0,17	10,8 - 11,0

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4MB T2,8 e

5. Edition

PE 8 P 100 A 320 LS 810

RQ 300/1150 PA 187 R (1) RQV300-1150 PA 227 R (2) ROV350-1250 PA 251 R (3) supersedes 4.80 company: Daimler-Benz

engine: OM 402 188 kW (256 PS) (3)

1-8-7-2-6-3-5-4 je $45^{\circ} \pm 5^{\circ} (\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,35-3,55)

mm (from BDCZV]. 8

Rotational speed rev/min 1	travel	Fuel delivery cm³/100 strokes 3 (1 U. 2)	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3+0,1	10,0-10,2	0,3(0,6)	11,0+0,1	10,1-10,3	n = 1230
300	7,5-7,7	1,4-2,2	0,3(0,5)	7,8-8,0	1,5-2,1	n = 350

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider Full-load speed regulation PRG check 1 Setting point Test specifications					•		speed regulation			Torque control		
rev/min	Control rod travel	rev/min	Control rod travel rom	Control red travel mm	rev/min	Setting prev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel mm	
650	13,8-14,6	650	14,	2 9,3 4,0 1400	1195-1210 1235-1265 o - 1,0	t .	7,5	100 300 405-	min.9,1 7,4-7,6 445= 2,0	-	-	
Torque-c	control travel	L			<u> </u>		11	95-12	10 min	•	1 mm less contro	

Torque-control travel

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed Committee		
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5		rev/min 6	red travel cm ³ /1000 strokes:/ mm 7	
1150	100,0-102,0 (98,0-104,0)	500	600	82,0-87,0 (80,0-89,0)		100	110,0-130,0	

Checking values in brackets

10.82

Upper rated	speed			Intermediate	rated spe	ed		Lower rated	speed		Sliding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	(la)	Degree of deflection		Control rod travel		Degree of deflection		Control rod travel		1
of control lever	rodtravel mm	mm rev/min	(2a)	of control lever	rev/min	mm (4	1	of control lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6		7	8	9	10	11
max.	1150	15,2-17	,8	-	-	-		ca. 12		min.9,0	1	0,4-1,5 2,6-3,2
ca.62	9,3 4,0 1350	1190-12 1260-12 0 - 1	90					360-390	1	17,4-7,6		5,7-6,1 8,2
								3 a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2		Rotational-speed (26) limitation intermediate speed	Fuel deliv high idle s	ery characteristics (5a) peed (5b)	Starting Idle switchir	\sim	Torque- travel	Control rod	
rev/min	cm 1/1000 strokes	rev/min 4a	rev/min	cm ¹ /1000 strokes	rev/min	cm·/1000 strokes	rev/min	travel . mm	
1	2	3	4	5	6	7	8	9	
1150	102,0-104,0 (100,0-106,0)	1190-1200*	600	82,0-87,0 (80,0-89,0)	100	110,0-130,0	1	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV..PA 251 R (3)

Upper rated	speed			Intermediate	rated spe	ed		Lower rated	speed			Sliding sl	eeve travel
Degree of deflection	100	Control rod travel	(a)	Degree of deflection	i	Control travel	rod	Degree of deflection		Control i travel			0
of control lever	rod travel	mm rev/min	(22)	of control lever	rev/min	mm	•	of control lever	rev/min	mm	3	rev/min	mm
,	2	3		4	5	6		7	8	9		10	11
max.	1250	15,2-	17,8	_	-		-	ca.20	100	min. 6,9-		1285	8,3
ca.66	9,9 4,7 1500	1280-12 1350-13 0 -		-						770 =			
								3a					

Torque control travel a

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2		Rotational-speed (20) limitation intermediate speed	Fuel deliv high idle s	peed 50	Starting Idle switchir		Torque- travel	Control rod	
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min		rev/min	travel	
1	2	3	4	5	6	7	8	9	
1230	101,0-103,0 (99,0-105,0)		1230	78,0-80,0 (76,0-82,0)	100	110-130,0	-	-	
**	Reduced-deli			**		16,0-22,0 e-over point 70 (80-290)	The second secon		
-	The state of the s		A CONTRACTOR OF THE CONTRACTOR			i			

Testoil-ISO 4113

WPP 001/4 MB 11,8f

3. Edition

PE 6 P 110 A 720 RS 371

RO 300/1100 PA 424 R

Daimler Benz company OM 355 A engine (207 kW) 280PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

		3,0 2,007				·
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strakes	mm
1	2	3	4	2	3	6
1100	11,7+0,	15,7 - 15,9	0,4(0,8)			
300	6,1-6,3	1,4-2,0	0,4(0,7)			
•				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	Checking of slider Full-load speed in Setting point			•		Idle speed regulation Setting point Test specifications 5				Torque control		
rev/min	Control rod travel	j.	Control	Control red travel rnm 5	rev/min 6	rev/min 7	Control red travel	revimin 9	Control rod travel	rev/min 11	travel	
650	19,2-20,8	650	20,0	10,7	1145-1160	300	6,2	100	min.8,2	1100	11,7-11,8	
1100	Abregel- beginn	VH ca	. 30°	4,0	1195-1225			300 375-	6,1-6,3 415 = 2,0	650	11,7-11,9	
1350	0 - 1											

Torque-control travel

on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Fuil-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed			
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	rad travel cm ³ /1000 strokes / mm 7		
LDA 1100	0,7 bar 157,0 - 159,0 (154,0 - 162,0)		LDA 1100	0 bar 142,0 - 144,0 (139,0 - 147,0)	100	140,0 - 160,0		
					100-2	20 (80-240)		

Checking vairies in brackets

ump/govern or	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure :	par Gauge pressure = bar	mm (1)
371 with 424 R	0,70	0,39 0,35 0	11,7 - 11,8 11,5 - 11,6 11,2 - 11,3 11,0 - 11,1

Notes

(1) when n

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 DAF 11,6 i 7

1. Edition

En

RQ 250/1100 PA 417 R PE 6 P 120 A 320 RS 372 - 1 y

supersedes DAF company DK 1160 243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75 - 2,95)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strok⊖s	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	11,4+0,1	20,4-20,8	0,5(0,9)			
250	6,2-6,4	1,1-1,5	0,8(1,2)			
			[
			İ			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load s	speed re	gulation	_	idle spec	ed regula	ation		Torque o	control
PRG che	Control rod	Setting po	oint Control	Test spec	cifications (4)	Setting p	Control	Test spe	cifications 5		Control rod
rev/min	travel	rev/min	rod travel	rod travel mm	rev/min	rev/min	rod travel	rev/min	travel	rev/min	travel
1	2	3	4	5	6	7	8	9	10	11	12
700	15,6-16,4	700	16,0		1135-1150 1200-1230 0-1,0	250	6,3	100 250 440-	min.7,4 6,2-6,4 480=2,0		11,4-11,5 11,3-11,5
	I control travel ght assembly dimer	ision a =	L ₀	mm	Spe	ed regula		35 - 11	50 min -1	L	1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	fuel delivery characteristics (3b)		delivery characteristics Starting fuel delivery Idle speed				
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rad travel cm ³ /1000 strokes / mm 7			
LDA 850	0,7 bar 204,0-208,0 (201,0-211,0)	-	LDA 600	0 bar 139,0-143,0 (136,0-146,0)	100	315,0-355,0 bei 19,5-21,0 mm RW			

Checking values in brackets

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 372-1y with PA 417 R	y 0,37	0,70 0 0,3	11,4 - 11,5 10,0 - 10,1 11,0 - 11,1 10,5 - 10,7

Notes

(1) when n -

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

H10

n -/1

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 5,7 v 10

1. Edition

PES 6 A 90 D 410 RS 2596

ROV 300-1400 AB 1120-1L

supersedes

compaDaimler-Benz engine OM 352 A 124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,0 - 2,1

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring p. a-tensioning (torque-control valve) mm 6
1400	11,9+0,1	7,4 - 7,5	0,3 (0,45			
300	8,9-9,1	0,9 - 1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	_	approx 19	100	min.10,5		
approx.	10,9 4,0 1750	1440-1450 1570-1600 0 - 1,0				\$90-660	300	8,9-9,1	630 1020 400	
						(3a)				

Torque control travel a =

Set stop at 3,0-3,5 mm control rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten			1		ristics 5a Starting fuel delivery 6 Idle switching point			Control rod
rev/mm	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm 9
LDA 1400	0,7 bar 73,5-74,5 (71,5-76,5)	1440-1450*	LDA 500 LDA 500	0,7 bar 68,5-70,5 (66,5-72,5) 0 bar 56,0-58,0 (54,0-60,0)	100	15,8-	1400 500 1000 1200	11,9+0,1 13,1+0,1 12,7+0,2 12,1+0,3

Checking values in brackets

1 mm less control rod travel than col. 2

8.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
·	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6ARS2596 withAB1120-1L		0,70 0	13,1 - 13,2 12,0 - 12,1
	0,35	0,20	12,9 - 13,0 12,3 - 12,5

Notes

(1) when n ≈

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 v

8. Edition

ROV 300-1400 AB 1066 DL

supersede2.82

company Daimler-Benz engine: OM 352 A

124 kW (168 PS)

PES 6 A 90 D 410 RS 2596

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers A. Fuel Injection Pump Settings

1400 11,9+0,1 7,3 - 7,4 0,3(0,45)	Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve)
200 9 9 1 0 9 - 1 5 0 2(0 4)	1400	11,9+0,1	7,3 - 7,4	0,3(0,45)			
300	300	8,9-9,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed	•	Slidings	leeve travel
	rev/min Control rod travel	Control rod travel	(1a)	Degree of deffection of control		Control rod travel	_	Degree of deflection of control		Control rod travel		0
	mm	rev/min	(2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	tev/min	mm
1	2	3		4	5	6		7	8	9	10	11
max.	1500	15,2-17	,8	-	-	-		approx 19 .		min.10,3 8,7-8,9		0,7-0,9 3,8-3,9
approx.	4,0	1440-14 1570-16	00					560-620		1		5,3-5,5 7,7
	175C	0-1,	0					3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel deln high idle s	rery characteristics (5a)	Starting Idle switchin		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1400	0,7 bar 73,5 - 74,5 (71,5 - 76,5)	1440-1450*	LDA 500 LDA 500	0,7 bar 68,5 - 70,5 (66,5 - 72,5) 0 bar 56,0 - 58,0 (54,0 - 60,0) Set stop at 3		71,0 - 81,0 RW= 15,8-16,2 mm 5 mm control	1000 1200	13,1+0,1 12,7+0,2 12,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = ba	Gauge pressure = bar	mm (1)
RS 2596 with	0,7		13,1 - 13,2
AB 1066 DL		0,35	12,9 - 13,0
		0,20	12,3 - 12,5
		0	11,9- 12,0
	!		
			<u> </u>

Notes

(1) when n

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 i 4. Edition

En

PE 6 P 110 A 320 RS372

RSV 250-1100 P 5/458R

supersed \$81 compan DAF engine DKTD 1160

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90 Port closing at prestroke (2,75-2,95)

estoil-ISO

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ¹ / 100 strokes 4	mm 2	cm ² /100 strokes	mm 6
850	12,0-12,1	13,6 - 13,8	0,4(0,8)			
250	6 ,6-6,8	0,7 - 1,1	0,4(0,7)			
·						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interm	ediate rate	ed speed	4	Low	er rated speed	(3) To	rque control
Degree of deflection	Control rod travel	travel				Control- lever		Control rod travel		Control rod . travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min	11
loose	800	0,3-1,0				aprox.	250	6,2	400	12,2-12,3
approx.	X =	3,5				21	250	6,6-6,8	300	12,4-12,9
		50 = 11,0 05 = 4,0 0,3-1,7					2	700 = 2,0		
	1 425	0,3-1,/					<u> </u>			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	ill-load stop	6 Rotational- speed limitat		iel delivery iaractenstics	Starting I	uel delivery 5	(4a) Idi	e stop
Test oil te revimin	emp 40°C (104°F) cm ³ /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm91000 strokes	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
LDA 850	0,7 bar 136,0 - 138,0 (133,0 - 141,0)	1140-1150*	LDA 600	0 bar 126,0 - 129,0 (123,0 - 132,0)	100 250	24 ,0-285, 7,0-11,0		To you and the same of the sam

Checking values in brackets

* 1 mm less control rod travel than col. 2

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure - bar	mm (1)
372 with 458R	0,70	0,30 0,26 0	12,0-12,1 11,8-11,9 11,5-11,7 11,4-11,5

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 PEN 7,0 c

5. Edition

PE 6 P 100 A 320 RS 291

EP/RSV 200-1200 P 1/305R EP/RSV 200-1000 P 1/305R

supersedes5.79 company Volvo-Penta MD 70 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 + 0,1

RS 291

mm (from BDC)

 $\binom{+0,15}{-0,05}$

Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm1/100 strokes	cm ^{-/} 100 strokes	mm	cm ¹ /100 strokes	mm 6
12	12.7 - 13.5	0,6	2	3	2,5 ⁺ 0,1 ** (max.2,2-2,9
15					(max.2,2-2,9
	1				
9	3,0-4,0				
	travel mm 2	travel mm 2 cm /100 strokes 3 12,7 - 13,5 17,1 - 18,8	travel mm 2 cm 1/100 strokes 3 cm 1/100 strokes 4 12 12,7 - 13,5 0,6 15 17,1 - 18,8	travel	travel mm 2 cm:/100 strokes 100 strokes mm 2 12 12,7 - 13,5 0,6 15 17,1 - 18,8

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1200

1 Uppe	rated speed	rev/min	Interme	diate rated	speed	4	Lower	rated speed	1 3 /	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min	Control rod travel * mm
approx.	1200	16,0				approx.	200	6,0	1200	0
68	1260 1320	10,4 4.0				25	100	19 - 21	250	1,2-1,8
23	1260 1320 1380	9,0-11,4 1,8- 5,3 0,3- 1,0	with	out aux		Ĭ	200 270 350	5,7-6,3 1,8-3,8 0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Fu	II-load stop	6 Rotational-speed limitat	1301	iel delivery iaracteristics	Starting fidle	uel delivery 5	4a) idi	stop
Test oil te	cm ³ /1000 strokes	Note changed to 1 rev/min	rev/min	cm=/1000 strokes	rev/min	cm=/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	68,0 - 70,0	1240-1250*			100	190 - 230		
					225	11 - 15 ion max.2,) **	
					Dispers	ion max.2,)	
								./.

Checking values in brackets

* 1 mm less control rod travel than col 2

In the case of greater dispersion alter the delivery-valve spring pre-tension 10.82 accordingly.

B. Governor Settings

11 1	r rated speed Control rod travel	rev/min Control rod travel	Intermed	liate rated	speed	Control-		rated speed Control rod travel	11 3 /	rque control Control rod travel
deflection of control lever 1	mm 2	mm rev/min	4	5	6	lever deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
approx.	1000 1050	16,0				approx. 22	200	6,0	980	0
	1100	10,8 3,9	witho	out au:	xilian		100	19 - 21		
23	1060 1100 1160	8,1-10,6 2,0-6,0 0,3-1,0		auxil		pring	200 260 340	5,7-6,3 2,5-4,0 0 - 1	240	1,2-1,8

C. Settings for Fuel Injection Pump with Fitted Governor

li-load stop	6 Rotational- speed limitat.			Starting f	uel delivery 5	4a) *dle stop	
emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm
95,0 - 97,0	1040-1050*			100	190 - 230		
				225 Dispers	11 - 15 ionmax.2,5)**	
1	mp. 40°C (104°F) cm³/1000 strokes 2	mp. 40°C (104°F) cm³/1000 strokes speed limitat. Note: changed to) rev/min 3	mp. 40°C (104°F) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes	mp. 40°C (104°F) cm³/1000 strokes Note: changed to) rev/min rev/min rev/min cm³/1000 strokes 3 4 5	speed limitat. Characteristics lide Note:	mp. 40°C (104°F) cm³/1000 strokes 2 95, 0 - 97, 0 Speed limitat. Note: changed to) rev/min cm³/1000 strokes cm³/100	speed limitat. Characteristics lide Note: changed to) rev/min cm³/1000 strokes 2

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Interm	nediate rat	ed speed	Control- lever deflection in degrees 7	rev/min	er rated speed Control rod travel mm	rev/min	rque control Control rod travel mm 11
(2a)										

C. Settings for Fuel Injection Pump with Fitted Governor

	emp. 40°C (104°F)	Rotational-speed limitat. Note: Speed limitat. Rotational-speed limitat.			Starting f	uel delivery 5	da Idle stop		
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9	
				•					

Checking values in brackets En

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 k

3. Edition

PES 5 A 95 D 410 LS2543 ..LS2543Y

RQV 250-1100 AB1038DL (1) 250-1100 Ab1038DL (2) supersedes 78 company M A N

engine: D2565 M/MF/MFSV (1-141kW-192PS-Nr.7936) (2-137kw-186PS-Nr.7959) Saviem - 7018

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	strcke	(1 45-1 65)	mm (from BDC)	mm (from BDC7y1. 5							
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1100	11,0+0,1	11,2 - 11,4	0,3 (0,6)								
250	5,9-6,1	0,9 - 1,5	0,3 (0,5)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..2543 mit ..1038L (1)

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed		Sliding s	ieeve travel
	rev/min Control rod travel	Control rod (18 travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2	lever	rev/min	mm (4)	lever	rev/min	mm (3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	£1
approx.	1150 1300	14,4-17,6 0 - 1	-	-	-	approx.		min. 7,5 5,9-6,1 375 = 2,0	700	0,5-1,2 4,3-4,6 8,3
approx.	10,0 4,0	1140-1150 1175-1205	1			3a	450	0 - 1		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		limitation intermediate speed				fuel delivery (6)	Torque- travel	control 5 Control rod
rev/min 1	cm ³ /1000 strokes	rev/min (48)	rev/min 4		rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9 +0,1
(1) 1100	112,5-114,5 (110,5-116,5)	1140-1150*	750	108,0-111,0 (106,0-113,0) max. 111,5 (113,5)	100 250	149 - 159 6,0 mm RW	1100 800 500	11,0 11,4 11,4

Checking values in brackets

* 1 mm less control rod travel than col 2

(3a)

Torque control travel a =

42

mm

C. Settings for Fuel Injection Pump with Fitted Governor

•	Full-load de Control-rod Test oil temi		Rotational-speed (2b) limitation intermediate speed	Fuel deliv	rery characteristics (5a)	Starting Idle switchir		Torque- travel	Control rod
	rev/min 1	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	travel mm 9 +0,1
	(2) 1100	110,5-112,5 (108,5-114,5)	1140-1150*	750	106,5-109,5 (104,5-111,5)		149 - 159	1100	11,0
				500	max. 109,5 (111,5)		6,0 mm RW	800 500	11,4 11,4

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Sliding s	eeve travel
1	-	Control rod travel	(la)	Degree of deflection		Control rod travel	Degree of deflection	l	Control rod travel		1
of control lever	rod travel mm	nm rev/ min	(2a)	of contro- lever	rev/min	mm (4)	of control lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
						4			,		
					1						
					1						
						_	(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test on tem		Rotational-speed (2b) Ilmitation intermediate speed (4a)	Fuel deliv high idle s	rery characteristics 5a speed 5b	Starting Idle switchir	fuel delivery 6	Torque- travel	Control rod travel
tex,wiu	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
1								
1			1			1		
		!						
•	•	- - -						

Checking values in brackets En * 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 HAN 10,8 a 1

6. Edition

supersed 2.81

En

PE 6 A 95 D 320 RS 2364 RS 2557 EP/RSV 350-1100 A8 B1070R A8 B1127B

A8 B1070R
A8 B1127R
engine D 963 A1

**Test cold-start device according to VDT-I-DAF 004 Check page 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 2364 cm 1/100 strokes 3	Difference cm ^{-/} 100 strokes	Control rod travel mm 2	Fuel delivery 2557 cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,5	13,5 - 13,8	0,3 (0,6)	13,2	12,4-12,5	n 1100
350 500	+0,1 6,7-6,9	1,4 - 2,0 C, 4-5	0,3 (0,5) 0,4 (0,7)	i	1,4- 2,0	n 350

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

r rated speed	i rev/min	Interm	ediate rat	ed speed	(4)		•	3 Torque control		
Control rod travel	Control rod travel				Control-		Control rod travel		Control rod , travel	
mm	mm rev/min				deflection in degrees	rev/min	mm	revimin	mm	
2	3	4	5	6	7	8	9	10	11	
800	0,3-1,0		4		approx.	350	5,5	480	13,5-13,6	
	5,5				24	100		400	13,8-14,2	
	1140-1150					ì		400	1,00-14,2	
4,0	1205-1235					600	0 - 1			
	Control rod travel mm 2 800 x = 12,5	mm rev/min 2	Control rod travel mm mm rev/min 2	Control rod travel mm mm rev/min 2	Control rod Control rod travel mm rev/min 2 3 4 5 6 6	Control rod travel Control rod travel mm rev/min 2 3 5 6 Control-lever deflection in degrees 7 800 0,3-1,0 x = 5,5 12,5 1140-1150 4,0 1205-1235 Control-lever deflection in degrees 7 24 24 24 3 3 3 3 4 5 6 7 3 3 3 4 5 6 7 3 3 3 3 4 5 6 7 3 3 3 3 3 3 3 3 3	Control rod travel mm rev/min 2 3 4 5 6 Control lever deflection in degrees 7 8 approx. 350 24 100 350 435-495 600	Control rod travel mm rev/min 2 3 4 5 6 Control rod travel mm rev/min 2 3 5 6 Control rod travel mm rev/min 2 3 5 6 Control rod travel mm rev/min mm mm mm mm mm mm mm mm mm mm mm mm mm	Control rod travel mm rev/min 2 3 4 5 6 $\frac{\text{Control rod travel mm rev/min 2}}{3}$ 4 5 6 $\frac{\text{Control rod travel mm rev/min mm rev/min 2}}{3}$ 4 5 6 $\frac{\text{Control rod travel mm mrev/min mm rev/min mm rev/min mm mm}}{3}$ 350 5,5 480 $\frac{\text{Control rod travel mm mrev/min mm mm}}{3}$ 4 80 $\frac{\text{Control rod travel mm mrev/min mm mm}}{3}$ 4 80 $\frac{\text{Control rod travel mm mm rev/min mm mm}}{3}$ 4 80 $\frac{\text{Control rod travel mm mm mm}}{3}$ 6 $\frac{\text{Control rod travel mm mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm}}{3}$ 9 400 $\frac{\text{Control rod travel mm mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 10 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 8 0 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 9 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\frac{\text{Control rod travel mm mm}}{3}$ 10 $\text{Control $	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat	uel delivery naractenstics	Starting f	4a Idle stop			
Test oil te rev/min 1	emp 40°C (104°F) cm³/1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm
1100	134,0 - 136,0 (132,0 - 138,0	1140-1150*	500	131,0 - 134,0 (129,0 - 136,0)	100	20-20,5 mm RW **		
						·		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(1) Uppe	r rated speed	rev/min	Intermed	diate rated	speed	(4)		rated speed	Torque control		
Degree of deflection of control	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm	rev/min	travel mm	
lever 1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0				approx	350	6,2	1 100	13,2-13,3	
20000	x =	5,5				19 .	100	min. 19,5	450	13,2-13,4	
2a)	12,2 = 4,0 =	1140-1150 1220-1250 0,3-1,7					350 470-53	6,6-6,8 D = 2,0	400	13,5-13,9	

C. Settings for Fuel Injection Pump with Fitted Governor

(L)	Il-load stop emp. 40°C (104°F)	Rotational- speed limitat.	33 Fu	el delivery aracteristics	Starting f	uel delivery 5	ldle stop Control rod	
	cm ³ /1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
1100	124,0 - 125,0 (122,0 - 127,0)	1140-1150*		121, 0- 124,0 (119, 0- 126,0)	100	20-20,5 mm RW**		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	control rod travel mm rev/min	intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	rque control Control rod travel mm
2a									

C. Settings for Fuel Injection Pump with Fitted Governor

	#Hoad stop emp. 40°C (104°F)	Rotational- speed limitat. Note: changed to)			idle	uel delivery 5	Control ro		
rev/min	cm3/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
		·		·				·	
					<u> </u>				

Checking values in brackets En

Test Specifications Fuel Injection Pumps 1 WPP 001/4 MB 14,6 o and Governors 1. Edition

PE 8 P 120 A 320 LS 3816 RQV 350-1150 PA 590 1 - 8 - 7 - 2 - 6 - 3 - 54 je $45^{\circ} + 0.5^{\circ}$ (+ 0.75°) Values apply to engine nozzle-and-holder assemblies 1 688 901 019

1 680 750 067

supersedes companyDaimler Benz engine OM 422 A 243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

and engine fuel-injection tubing

Port closing at pres	stroke	(3,95-4,15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1150	11,0+0,1	15,8-16,0	0,5(0,9)			
300	4,9-5,1	1,2-1,8	0,8(1,2)			
· L	<u> </u>			L	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	eed		Lower rated	speed		Studings	ileeve travel
deflection	rev/min Control rod travel	travel v	(a)	Degree of deflection of control		Control rod travel		Degree of deflection of control		Control rod travel	Onding 3	1
lever	mm	rev/min (2a)	lever	rev/min	mm f	(4)	lever	rev/min	mm (3	rev/min	mm
1	2	3		4	5	6	_	7	8	9	10	11
max.	1150	15,2-17,	8	-	•	-		approx	100	min.6,0	300	0,6-0,9
20000	10.0	1190-120	0	•				10	350	4,5-4,6	580	3,6-3,8
approx. 63		1270-130 0 - 1,	0					3	70 - 48	0	870 1150	5,2-5,4 7,6
								(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten rev/min	stop np. 40°C (104°F) 2	Rotational-speed (2b) ilmitation intermediate speed rev/min	high idle speed (5b)		Starting fuel delivery (6) Idle switching point rev/min cm³/1000 strokes		Torque- travel	Control cod travel
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 158,0-160,0 (155,0-163,0)		LDA 600 LDA 500	0,7 bar 166,0-172,0 (163,0-175,0) 0 bar 140,0-142,0 (137,0-145,0)		125,0-145,0	850	11,0+0, 11,4+0, 11,5+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2 10.82

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 PLS 3816 withPA 590	0,47	0,70 0 0,40	11,4-11,5 11,6-11,7 10,5-10,6 10,9-11,0

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21,9 b

1. Edition

PE12P120A320LS3819-1

ROV 350-1150PA493

1- 5- 9- 8- 3 - 4 - 11 -10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° $^{+}0$,5°($^{+}0$,75°)

_{company:}Daimler-Benz OM 424 A 390 kW (530 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1
Port closing at prestroke (3.95-4.15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	11,1+0,1	15,9-15,1	0,5(0,8)			
350	4,8-5,0	1,4 - 2,0	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

Values apply to

B. Governor Settings

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

Upper rated s	speed			Intermediate	rated spe	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel	mm		Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever	mm	rev/min (2a)	lever	rev/min	mm 4) lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1150	15,2-17	,8	-	-	-	approx.	100	min.8,5	800	0,9-1,1
approx. 64	10,1 4,0	1190-120 1280-13					14	350		580 870 1150	3,5-3,7 5,2-5,4 7,8
	1375	0-1,0					400-600 3a]			

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten		Rotational-speed (2b) limitation intermediate speed	high idle speed So			fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,6 bar 159,0-161,0 (156,0-164,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 164,0-170,0 (161,0-173,0) 0 bar 127,0-129,0 (124,0-132,0)		120,0-140,0	-	•

Checking values in brackets

* 1 mm less control rod travel than col 2

Test at n =

FOR

rev/min decreasing pressure - in bar gauge pressure increasing

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PE12PLS3819-1 with .PA 493	0,38	0,60 0 0,32	10,8-10,9 11,1-11,2 9,8-9,9 10,1-10,3
		: :	

Notes

(1) when n

rev/min and gauge pressure =

bar (* maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,2 i 1

2. Edition

En

PF 6 A 90 D 320 RS 2547

RSV 250-120° A5B 779 R

supersedes 5.81 company DAF engine DT 615

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3 (2,15-2,35)

mm (from BDC)

RW 9 /

rev/min mm 2 mm 2 mm 2 mm 2 mm 6 mm 2 mm 6 mm	Rotational speed	Control rod	(2,15-2,35) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1000 10,8+0,1 7,1-7,2 0,3(0,45)	rev/min		cm ³ /100 strokes			cm ³ /100 strokes	mm
	1	2	3	4	2	3	6
250 5,9-6,1 0,8-1,2 0,2(0,4)	1000	10,8+0,	7,1-7,2	0,3(0,45			
	250	5,9-6,1	0,8-1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper	rated speed	***************************************	Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	approx.	250	5,5	1000	10,8-10	9
approx	×	= 3,25				22	250	5,9-6,1		10,8-11 11,0-11	
54 (5)	9,8 4,0 1450	1240-1250 1275-1305 0,3 - 1,7					330-	90=2.0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	Sa) idle	e stop
Test oil temp rev/min 1		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	1	Control rod travel mm 9
LDA 1000	0,7 bar 71,0 - 72,0 (69,0 - 74,0)	1240-1250*	LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	100	133,0-143, bei 19,5 - 21,0 mm RW	ł	<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing difference between control-rod travel 9 mm and max. = 2.5 - 3.5° camshaft.

Testatn =

1000

rev/min increasing pressure – in bar gauge pressure

	XXXXXXX	Massyramont	diminution
Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 2547 with	0,7 bar		10,8 - 10,9
RSV A5B 779 R		0,25	10,6 - 10,7
		0,21	10,1 - 10,4
		0	9,8 - 10,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

estoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 10,0 h 4 2. Edition

٤n.

PE 6 P 110 A 320 RS 229 Z ROV 250 - 1100 PA 427/2R

companyVolvo engine. THD 100TD 177 kW(240PS)

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.60-2.70

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
700	11,4+0,1	13.9 - 14,1	0,4(0,8)			2,5+0,1 **
250	5,8-5,9	1,1 - 1,5	0,3(0,7)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed		Slidinas	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod ta	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	ooy s	1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 13		min. 8,0		0,7-0,9
ca.48	10,4 4,0 1350	1160-1170 1240-1270 0 - 1,0					1	5,8 -5,9 385=2,0		3,0-3,3 5,2-5,5 8,0
	٥رر١	0 - 1,0				3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		limitation intermediate speed	high idle s	rery characteristics (5a)	Starting idle switchin	, 0	Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	ากก
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 139,0-141,0 (135,0-143,0)	1160-1170*	LDA 700	0 bar 117,5-1295 (114,5-123,5)	100	290,0-340,0 bei 20,0-21,0 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n = 500 rev/min decreasing pressure – in bar gauge pressure XXXXXXX

Pump/governor Setting Measurement Control rod traverx Co		XXXXXX		
RS 229 -Z with PA 427/2R 0,7 0,33 11,1 - 11,2 0,25 10,4 - 10,5	Pump/governor			Control rod trayexxx difference XXXXXXX
PA 427/2R 0,33 11,1 - 11,2 0,25 10,4 - 10,5	RS 229 Z with		Gauge pressure = Dar	
	PA 427/2R	U, /	0,33 0,25 0	11,1 - 11,2 10,4 - 10,5

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q 5

2. Edition

PES 6 A 90 D 410 RS 2293

EP/RSV 350-1400 A O B 788 DL

supersed 6 82

companyDaimler-Benz

engine OM 352 A

H = 22,5 mm

124 kW (168 PS)

Ali test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 2015-2,25

Port closing at prestroke

mm (from BDC)

on diosing at pies	(2,10-2,30)	man (mont boc)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	11,3+0,1	7,4 - 7,5	0,3(0,45)	ā		
350	6,7-6,9	0,5 - 1,1	,2(0,4)			

B. Governor Settings

Upper	rated speed		Intermediate	Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
67-70	1400	11,3-11,4				19-21	350	6,8		+0,1	
	1440 - 1475 -	1450 = 10,3 1505 = 4,0	without	auxil	liary spri	ng		mind.19 6,7-6,9	1400 650	11,3 11,3	
(5)	1145	ca. 10,3	with au	xiliar	ry spring		540-6 700	00=2,0 0 - 1	500	11,5	
	1600	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limital.		el delivery aracteristics	Starting Idle	fuel delivery	Sa) Idle	e stop
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
LDA 1400	0,7 bar 74,0-75,0 (72,0-77,0)	1440-1450*		0,7 bar 62,0-64,0 60,0-66,0)	100	13,7-14,3 mm RW		0,5-1,0 before
			LDA 500	0 bar 54,0-56,0 (52,0-58,0)				stop

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

² ump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A RS 2293 with AOB 788 DL		O 0,29	10,8 - 10,9 11,1 - 11,2
	0,50	i.e.	11,5 - 11,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device:

Locking at

0,4 - 0,5 bar

Unlocking at 0.15 - 0,25 bar

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 Vol 10,0 h 3

5. Edition

En

PE 6 P 110 A 320 RS 229Y RQV 250-

RQV 250-1100 PA 427/2 R

supersedes 82 company: Volvo engine: THD100D 199 kW(270PS)

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1 2 3 4 2 3 6 700 10,5+0,1 13,0-13,2 0,4(0,8) 2,5+0,1**
250 6,0-6,2 1,1-1,5 0,3(0,6) (max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	,	Intermediate rated speed			Lower rated speed			Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod trævel mm	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	1
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	_	-	approx	100 250	min. 7,5		0,7-0,9
approx 46	9,5 4,0 1370	1160-1170 1240-1270 0 - 1,0				12		885=2,0	800 1 1 00	3,5-3,8 5,2-5,5 8,0
						3a				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed	Fuel deliv	very characteristics 5a poeed 5b	Starting Idle switchir		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 130,0-132,0 (127,0-135,0)	1160-1170*	LDA 700	0 bar 111,0-113,0 (108,0-116,0)	250	290,0-340,0 13,0-17,0 persion max.3		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

700 rev/min decreasing pressure - in bar gauge pressure

_	*****		
Pump/governor	Setting	Measurement	Control rod ***********************************
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 229Y	0,75	·	10,5-10,6
with PA 427/2 R		0	9,5-9,6
		0,41	10,2-10,3
		0,36	9,7-9,9
	1		·

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

5. Edition

estoil-ISO 4113

PES 6 MW 100/320 RS 1016 RQV 300 - 1300 MW 25-1 Komb. 0 403 446 122 1 - 5 - 3 - 6 - 2 - 4 je 60° supersedes 5.82 companRVI engine MIDRO6.02-12 125 kW (170 PS)

*Port closing mark 8° after port closing at control-rod travel 10,5 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1	9,1 - 9,3	0,35(0,6)			
300	6,3-6,5	0,95-1,35	0,35(0,55)		
900		1	0,5 (0,7)		1	
500			0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod (1a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	J	1
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1400 1650	15,2-17,8 0 - 1,0				ca. 12	100 300	min.8,0 6,0-6,2		
ca.62	10,1	1440-1450 1550-1580					490-	550 = 2,0		
						(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp, 40°C (104°F)		limitation intermediate speed	high idle s	Fuel delivery characteristics 5a high idle speed 5b		fuel delivery 6	Torque- travel	Control 5 Control rod
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm naver
1	2	3	4	5	6	7	8	9
LDA 1400	0,7 bar 91,0-93,0 (89,0-95,0)	1440-1450*	LDA 900	0,7 bar 87,5-91,5 (85,5-93,5)	100	94,0-104,0		
			LDA 500	0 bar 59,0-61,0 (57,0-63,0)	100-	230 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than coi. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

			, , , , , , , , , , , , , , , , , , ,
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1016 with	0,25		10,8 - 10,9
MW 25-1		0,7	11,1 - 11,2
		0,1	10,3 - 10,4
		0	10,1 - 10,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO

supersedes 4.81

PE 8 P 120 A 320 LS 3807

RQ 300/1150 PA 546

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} + 0.5^{\circ}$ (+ 0.75°)

company Daimler-Benz

Values apply to

OM 422 A 243 kW (330 PS)

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /190 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150 300	10,7+0,1 5,2-5,4	1	0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-load s	•			idle spec	-		cifications (5)	Torque	(3)
rev/min	Control rod travel mm	rev/min	Control rod travel mm 4	Control rod travel rnrn 5	rev/min 6	rev/min 7	Control rad travel mma 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel
600	19,2-20,8	600	20,0		1190-1205 1255-1260	300	4,5	100 300	min.6,0 4,4-4,6	1	10,7-10,8 11,4-11,5
VH =	max. 46°			4,0	1233-1200				380 = 2,0		10,8-11,0
			0.3			<u> </u>		00 13	05 min-1	<u> </u>	<u> </u>

Torque-control travel on flyweight assembly dimension a

1190-1205 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Fulf-load de governor c	elivery on ontrol lever np. 40°C (104°F)	Control rod stop 3	Fuel delive	(2L)	Starting for	d Contral
rev/min	cm³/~1000 strokes	rev/min 3	rev/min	cm ³ /~1000 strokes	rev/min	red travel cm ³ /1000 strokes:// mm 7
LDA 1150	0,7 bar 156,5-158,5 (153,5 - 161,5)	-	LDA 900	0,7 bar 164,0 - 168,0 (161,0 - 171,0)	100	120,0 - 140,0
LDA 600	0,7 bar 166,0 - 172,0 (163,0 - 175,0)		LDA 500	0 bar 137,0 - 140,0 (134,0 - 142,0)		

Checking values in brackets

Test at n =

500

rev/min decreasing pressure in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
,	Gauge pressure = bar	Gauge pressure ≈ bar	mm (1)
PE 8 PLS 3807 withPA 546	0,47	0,70 0 0,40	11,2-11,3 11,4-11,5 10,3-10,4 10,6-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

J14

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1a 3

2 Edition

En

VA 6/100 H 1700 BR 119 0 460 306 044

supersedes, 82 companyHanomag engine D 161

Pre-setting see reverse side

0,3 mm Setting of the pointer at a stroke of 1 mm in relation to outlet "A". All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

1. Settings	rev/min	Settings		Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1500	7,8-8,8	mm		
1.2 Supply pump pressure	1700	6,7-7,2	kp/cm²		
1.3 Full-load delivery without charge-air pressure	1200	52,0-53,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0	cm ³ /1000 strokes	# # #	3,0
1.5 Start	100	mind.65,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1800	21,0-29,0	cm ³ /1000 strokes		

2. Test Spe		NS Checking value 600-760 (570-		.s 150	n	1550-1680	
21 Timing device	rev/min		- / 30)			· -	71
	mm	Beginn		(7,5-	y, []	8,7-9,4 (8,4-9,	,,
22 Supply pump	rev/min	100		20	0	1700	
22 Supply pullip	kp/cm ²	0,7-1,2 (0,5-	-1,4)	6,2-6,7 (6,0-6,9)	6,7-7,2 (6,5-7,	4)
Outside widolines	rev/min	500		150	0	1700	
Overflow delivery	cm ³ /10 s	mind. 25		85-125	(70-140)	85-125 (70-140))
2.3 Fuel deliveries							
Speed control lever	Delivery lever	rev/min	cm ³ /1000	strokes		Charge-air pressure kp/cm²	
End stop	Full	1860-1950 (1840-1970)	0		***************************************		
		1850		3,0-	15,0		
		1800		(20,0)-30,0)		
		1700	44,5-4	17,5 (43,5	-		
		1200 500	1111 = 11	(51,5) 7,5 (43,5	5-53,5)		
		500	44,3-4	17,5 (43,5	1-40,3)	•	
						7.5	
	Stop	1700	0			•	
Idle stop	Full	420-560	0				
		(400-580) 350		- 0	10.0	*	
		300		5,0- (9,0-	-10,0 -17,0)		
	6	100	mind.		, -,		
	Start		minu.	UJ, U			
End stop		300-550	1				

Angle to the stop-plate	Pre-setting dimensions
Pump $^{\alpha} = 25 \pm 4^{\circ}$ $^{\beta} = 55 \pm 8^{\circ}$ $^{\gamma} = 45 - 8^{\circ}$ $^{\delta} = 60 + 8^{\circ}$	Pump Dimension IV = 5,5 mm Dimension V = - mm

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21,9 €

1. Edition

PE 12 P 120 A 320 LS 3821

RQV 350-1150 PA 493-1

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12 0 -15 -60 -75 -120-135-180-195-240-255-300-315° - 0,5°

(0,75°)

supersedes

companyDaimler-Benz engine. OM 424 LA

441 kW (600 PS) Snow plough

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15) mm (from BDC) Zy1. 12

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strckes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,6+0,1	17,5-17,7	0,5(0,8)			
350	5,0-5,2	1,4-2,2	0,8(0,7)			
650	11,6+0,1					
500	10,4+0,1	C,Sp.4u.5	0,75			

Adjust the fuel delivery from each outlet according to the values in

Values apply to

B. Governor Settings

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

Upper rated s	peed	•		Intermediate	rated sp	ed		Lower rated	speed		Clidina o	looue terust
deflection	rev/min Control rod travel	mm	(e)	Degree of deflection of control		Control ro travel	d	Degree of deflection of control		Control rod travel	Suaing s	leeve travel
I	mm	rev/min (2			rev/min	mm	(4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6		7	8	9	10	11
.max.	1150	15,2-17,	8	-	-	-		ca. 8	100	min.6,7	300	0,9-1,1
ca.58	10,6	1190-120	0	,					350	5,0-5,2		3,4-3,8
	4,0	1195-122									870	5,1-5,4
	1350	0 - 1,	0	·				400-600			1150	7,8
								(3a)				
L	L										نــــــا	

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed		very characteristics 5a	idie	fuel delivery 6	Tg.que-	control 5	
rev/min 1	cm ³ /1000 strokes -	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
LDA 1150	0,6 bar 175,0-177,0 (172,0-180,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 171,0-179,0 (168,0-182,0) 0 bar 143,0-145,0 (140,0-148,0)	100	140,0-160,0	•	-	

Checking values in brackets

1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE12PLS3821	0,39		11,3 - 11,4
withPA493-1		0,60	11,6 - 11,7
		0	10,4 - 10,5
		0,30	10,6 - 10,8

Notes

il) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

1

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 25,7a 3. Edition

En

PE 12 P 120 A 920 LS 3809

RQV 300-1050 PA 537

supersedes 11.81 FIAT company:

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 -15 -60 -75 -120-135-180-195-240-255-300-315° ±0,5°

engine: 8297.22 480 kW (653 PS)

Power car

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm3/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,0+0,1	19,2-19,6	0,5(0,9)			
300	5,9-6,1	2,8- 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated spe	ed		Lower rated	speed			Sliding s	eeve travel
1 0 -	rev/min Control	nsve.	シ	Degree of deflection		Control root travel	đ	Degree of deflection		Control ro travel	d		①
lever	rod travel	rev/min (2	. ` 1	of control		നന	4	of control lever	rev/min	шш	3	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1050	15,2-17,8	3	-	-	-		ca.13		min.7, 5,9-6,		250 520	0,5-0,8 4,1-4,8
ca.61		1090-1100										780 1050	6,0-6,2 8,2
	4,0	1165-1195	5					310-410					
								3a					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed (2b) limitation intermediate speed	The second secon			fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1050	0,7 bar 191,0-196,0 (188,0-199,0		LDA 1050	0 bar 139,0-143,0 (136,0-146,0	100	210,0-240,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 32

Test at n =

500

revimin decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE12P LS3809 with. PA537	0,33	0,70 0 0,29	9,5-9,6 9,9-10,0 9,5-9,6 8,4-8,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 SAU 12,5a 1. Edition

_En

PES 6 P 100 A 420 RS 262 Z RO 300/1100 PA 219DR(1) ROV 250-1100 PA 139DR(2) Saurer, Arbon company D 2 K

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	11,2+0,1	11,3-11,5				
200	9,0-9,2	3,5-4,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..PA 219 DR (1)

Checkin	g of slider	Full-load	speed re	gulation		idie spec	ed regula	ation		Torque o	ontrol
rev/min	Control rod travel mm	Setting por rev/min 3	Control rod travel mm	Test spec rev/min 5	critications Control rod travel mm 6	Setting property of the settin	Control rod travel	Test spe rev/min 9	cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
650	15,7-16,3	650	16,0				0		6,3-8,1 5,3-7,3 3,1-5,3 0	1100 700	11,2+0,1 11,6+0,1

Torque-control travel on flyweight assembly dimension a =

0,3

1150-1170 min -1 Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel deliv	very characteristics	Starting f	Starting fuel delivery		
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5	rev/min 6	cm³/100 strokes 7		
1100	113,0-115,0 (110,0-119,0)	500	700 500	119,0-122,0 (116,0-125,0) 111,0-115,0 (108,0-118,0)	150	160,0-180,0		

Checking values in brackets

11.82

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch. GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany imprime en Republique Federale d'Allemagne par Robert Bosch. GmbH.

Upper rated s	per rated speed Intermediate rated speed Lower rated spe				speed	peed		Silding sleeve travel			
	revimin Control	Control rod travel	(la)	Degree of deflection		Control rod travel	Degrae of deflection	1	Control rod travel		0
0.00	rod travel	mm rev/min	(2a)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	_	4	5	6	7	8	9	10	11
ca.68	1100 1150 1200 1280 1360	15,0-18 11,0-15 6,6-11 0 - 6	,0	-	-	-	ca.12	180 250 350 490	6,4-8,0 3,7-6,1 1,9-3,3	200 500 800 1100	0-1,0 3,9-4,3 5,5-5,9 8,3
							(3a)				

Torque controi travel a = 0,4

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	stop	Rotational-speed (2b) limitation intermediate speed (4a)	character high idle s	peed (5b)	ldle switchir		travel	Control cod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min 4	cm³/1000 strokes 5	rev/min	cm 1/1000 strokes 7	rev/min	mm 9
1100	113,0-115,0 (110,0-118,0)		700 500	119,0-122,0 (116,0-125,0) 111,0-115,0 (108,0-118,0)		160,0-180,0	1100 500	11,2+0, 11,6+0

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure

Setting Gauge pressure =	Contr	diminution of rod travel- difference
·		
	Gauge pressure = bar Gauge pressu	Gauge pressure = bar Gauge pressure = bar mm

En

WPP 001/4 MB 18,3e 1. Edition

PE 10 P 120 A 320 LS 3824 RQ 3C0/1050 PA 656

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4

0 -27 -72 -99 -144-171-216-243-288-315° + 0.5° (+ 0.75°)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC)Zy1. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050 300		19,0-19,2 1,6- 2,2	0,5(0,8) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-load s	speed re	gulation		idle spec	ed regula	tion		Torque o	control
	Control rod	Setting po	Control		Control rod	Setting p	Cuntral		cifications Control rod trav el		Control rod
rev/min	travel mm 2	rev/min 3	rod travel mm 4	1	travel mm 6	rev/min 7	rod tra vel mm 8	rev/min 9	mm 10	rev/min	mm 12
600 VH=n	19,2-20.3 max. 46°	600	20,0		1095-1110 1165-1195 0-1,0	1	4,3	300	min. 5,8 4,2-4,4 375=2,0	1050 600	, 1
L	<u> </u>				<i>9</i>		40	05 444	O min-		1 mm less control

Torque-control travel on flyweight assembly dimension a =

шш

1095-1110 min Speed regulation At

mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel deliv	very characteristics	Starting f	Starting fuel delivery		
rev/min	cm³/- 1000 strokes	rev/min	rev/min	cm³/-1000 strokes 5	rev/min	cm ³ /100 strokes 7		
LDA 1050	0,9 bar 190,0-192,0 (187,0-195,0)	-	LDA 500	0 bar 136,0-142,0 (133,0-145,0)	100	160,0-180,0		

Checking values in brackets

10.82

BOSCH

Geschaftsbereich KH. Kundendiens: Kfz-Ausrustung r. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE10PLS3824 withPA656	0,42	0,90 0 0,35	11,5-11,6 11,8-11,9 10,8-10,9 11,0-11,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

J24

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 14,6 K

2. Edition

PE 8 P 120 A 320 LS 3807

RQV 300-1150 PA 545

1-8-7-2-6-3-5-4 je 45 ° $^{+}0,5$ ° ($^{+}0,75$ °)

Values apply to

Testoil-ISO 4113

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 81 companDaimler-Benz engine OM 422 A 243 kW (330PS)

A. Fuel Injection Pump Settings

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	10,7+0,1	15,7-15,9	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			
	·					

Adjust the fuel delivery from each outlet according to the values in _______.

B. Governor Settings

Upper rated s	peed	,	Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod ta	Degree of deffection of control		Control rod travel	Degree of deflection of control		Control rod travel	J	1
1	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	_	-	ca.11	100	min.6,0	250	1,0-1,2
ca. 64	9,7	1190-1200		·			300	4,5-4,7	ľ	3,4-3,8 4,9-5,4
00.01	4,0	1225-1255	1			325-460		•	1150	7.7
	1350	0 - 1,0								
						3a			L	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil terr rev/min		Rotational-speed 2b limitation intermediate speed rev/min 4a	high idle s	very characteristics 5a speed 5b cm³/1000 strokes	Starting Idle switchin	1	Torque- travei	Control 5 Control roc travel mm
1	2	3	4	5	6	7	8	9
LDA 1150 LDA 600	0,7 bar 156,5-158,5 (153,5-161,5) 0,7 bar 166,0-172,0 (163,0-175,0)		LDA 900 LDA 500	0,7 bar 164,0-168,0 (161,0-171,0) 0 bar 137,0-139,0 (134,0-142,0)		120,0-130,0	600	10,7+0, 11,4+0, 10,8+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Coritrol rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8PLS3807 withPA 545	0,47	0,70 0 0,40	11,2-11,3 11,4-11,5 10,3-10,4 10,6-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

K2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP_001/4 MB 14,6 1 1 1 Edition

ROV 300-1150PA526-2 PE8P120A320LS3807 1-8-7-2-6-3-5-4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

supersedes _{company}Daimler-Benz engine OM 422 LA

276 kW (375PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
4,0-4,1

Port closing at prestroke (3,95-4,15)

mm mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900 300	11,6+0,1 4,2-4,4	<u> </u>	0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated	speed			Intermediate	rated sp	ed	Lower rated	speed		Slidina s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm (1)
1	2	3		4	5	6	7	8	9	10	11
max.	1150	15,2-17	7,8	-	-	-	ca.10		min.6,0 4,2-4,4		3,4-3,7
ca.65	4,0	1190-120 1230-126	50				320-465			850 1150	1,9-5,3 7,6
	1350	0- 1	, U				<u>3a</u>				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten	•	Rotational-speed (20) limitation intermediate speed		very characteristics 5a speed 5b	Starting Idle switchir	<u> </u>	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	[5	6	7	8	9
LDA 900 LDA 1150	0,7 bar 189,0-191,0 (186,0-194,0) 0,7 bar 185,0-189,0 (182,0-192,0)		LDA 600 LDA 500	0,7 bar 180,0-184,0 (177,0-187,0) 0 bar 139,0-141,0 (136,0-144,0)		140,0-160,∪	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE8PLS3807 with PA526-2	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 k

4. Edition

En

PE 6 P 120 A 220 RS 372

RSV 250-1100 P5/458R

supersedes 11.81

company DAF

engine []

DKS 1160

235 kW (320 PS)

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	10,9+0,1	19,1 - 19,5	0,5 (0,9			
250	5,2-6,4	1,1 - 1,5	0,8 (1,2			

adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	er rated spe	ed	3 To:	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 24	250	5,8	400 300	11,1+0, 11,3+0,
u.	x =	5,0					250 628 -	6,2-6,4 680 = 2,0		11,0 0,
Sa. 54	9,9 4,0 1425	1140-1150 1260-1290 0,3-1,7						-		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.			Starting idle	fuel delivery	5a) Idle	stop
Test oil temp		Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	Control rod travel mm 9
LDA 350	0,7 bar 191,0-195,0 (188,0-198,0)	1140-1150*	LDA 600	0 bar 135,0-137,0 (132,0-140,0)	100	315,0-355,0 19,5- 21,0 mm RW	-	•

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

600

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
	1		
PE6P120RS 372	0,36		10,6 - 10,7
withP5/458R		0,70	10,9 - 11,0
•		0	9,8 - 9,9
		0,28	10,0 - 10,2
•		,	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum fulf-load control rod travel)

K6

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 BET 14,9 a 2. Edition

En

PES 8P 110A 320 RS 336

RQV 250-1150 PA 320 DR RQV 250-1150 PA 415 DR company: Berliet engine MIVS 083530

246 kW (335 PS)

1-8-4-2-7-3-6-5

je $45^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.75-2.95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	11,8 - 12,0	0,4(0,8)			
250	4,0-4,2	1,4 - 2,0	0,4(0,7)			
650 500	13,1+0,1 11,2+0,1	C, Sp. 4 u. 5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..PA 320 DR u. ..PA 415 DR

Upper rated s	speed			intermediate	rated spe	ed	Lower rated	speed		Slid:na s	Sliding sleeve travel	
Degree of deflection of control	rev/min Control rod travel	travet \	18	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1	
lever	mm		2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm	
1	2	3	_	4	5	6	7	8	9	10	11	
max.	1200	15,2-17,	,8	-	an an	-	ca.9	100	min.5,6		0,6-0,8	
]	250	4,0-4,2	520	2,9-3,2	
ca. 66	10,4	1190-120	00							830	4,7-4,9	
	4,0	1270-130	00				1	370-4	10 = 2,0m	n1150	7,8	
	1400	0 - 1,0)				1					
i i												
	[(3a)	1				
	<u> </u>	<u> </u>								<u></u>		

Torque control travel a = 1 3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten rev/min		Rotational speed (2b) limitation intermediate speed rev/min (4e)	high idle s	cm ³ /1000 strokes	Starting Idle switchin)	Torque- travel	Control cod travel mm
LDA 1150	0,7 bar 118,0-120,0 (115,0-123,0)	3 1190-1200*	LDA 650 LDA 500	0,7 bar 158,5-162,5 (155,5-165,5) 0 bar 116,0-118,0 (113,0-121,0)		185,0-215,0	650 800	11,4+0,1 13,1+0,1 12,8+0,1 11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

ວບບ			
Ритр/Солегиог	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 8 PRS 336 PA 320 DR PA 415 DR	0,7	0 0,31 0,25	13,1 - 13,2 11,3 - 11,4 12,7 - 12,8 11,7 - 12,0

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En 🗥

Testoil-ISO 4113

WPP 001/4 DAF 6,2i2

2. Edition

En

supersede 5.81

company DAF

engine: DT 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See service Information VDT-I-DAF 004

Port closing at prestroke

PE 6 A 90 D 320 RS 2547

2,2-2,3 (2,15-2,35) mm

RW 0 9 mm/

		(2,10-2,00)				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	10,8+0,1	7,05 - 7,15	0,3(0,45			
250	5,9-6,1	0,8 - 1,2	0,2(0,4)			
						·
i	1	I	1	1	l	<u> </u>

RSV 250-1200 A5B 2133 R

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed	1	intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.17	250	5,5		10,8-10 10,8-10
	x =	3,25					250	5,9-6,1		11,1-11
ca.50,	5 9,8 4,0 1490	1240-1250 12 0-13 J 0,3-1,7						5 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop			Starting idle	fuel delivery	(5a) Idle stop		
Test oil temp. 40°C (104°F) rev/min		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 70,5 - 71,5 (68,5 - 73,5)	1240-1250*	LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Port closing difference between control-rod travel 9 mm and max. = $2.5 - 3.5^{\circ}$ camshaft.

8.82

BOSCH

Geschäftsbereich KM. Kundendienst. Kfz-Ausrustung.

Liby Robert Bosch GmbH. Dir Stuttgart t. Postfach 50. Printed in the Federal Republic of Germany Imprime en Republique Faderale d'Allemaigne par Robert Bosch CmbH.

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

1000

rev/min increasing pressure - in bar gauge pressure

	XXXXXXX		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 2547 with	0,7		10,8 - 10,9
RSV A58 2133 R		0,25	10,6 - 10,7
		0,21	10,1 - 10,4
		0	9,8 - 10,0
			1

Notes

(1) when n -

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

restoiring 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,8 m

5. Edition

PES 4 A 90 D 410 RS 2294

RSV 350-750 A 0 B 764 L 350-900

supersede8.82

company: Daimler-Benz

engine: OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2.25 2 10-2 30\

mm (from BDC)

Rotational speed	Control rod travel	10-2,30) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
700	9,4-9,5	4,7-4,8	0,3(0,4)		
350	6,7-6,9	0,5-1,1	0,2(0,4			
	1	1		_		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

350-750

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever		Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	_	_	approx.	350	6,8	_	_
approx	x =	3,25				15	350	6,7-6,9		<u>.</u> !
26 ⑤	8,4 4,0 820	750 788-796 0,3-1,7								

** Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery racteristics	Starting Idle	fuel delivery	5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	47,0-48,0 (45,0-50,0)	750*	-	-	100	78,0-88,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

	r rated speed Control rod		Interme	diate rated	t speed	•	Lower	rated speed	(3) To	rque control
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	travel	rev/min	travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
aprox33	750 830	16,0	İ			aprox.	350	7,0	-	-
	870	9,0 4,5				20	350	nin. 19 6,7-7,3		
approx 35	895 -	905 = 8,3	witho	out au	xiliar	y spring	370-43	$\phi = 2,0$		
(2a)	930 -	945 = 3.8 0.3 - 1.7	with	auxil	iary s	pring	450	0 - 1	:	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop	Rotational speed limitat	1.301	el delivery aracteristics	Starting f	uel delivery 5	(4a) Idle	e stop
Test oil te .rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
850	49,5-50,5 (4?,5-52,5)	895-905*			100	14,7-15,3 mm RW	350	7,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

**Set auxiliary idle spring at 2.0 mm control-rod travel.

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Setting		diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1)
		The second secon		
		٠		
~				

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 15,8" 1. Edition

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549 .

1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315 ° -0,5 ° (-0,75 °)

companyKHD BF 10L 413 F 265 kW (360 PS) bei 2050 min -1

supersedes

bzw. 252 kW (342 PS) (Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		2.75-2.95)	mm (from BDC)	r		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed	•	Intermediate	Intermediate rated speed			speed	Sliding sleeve travel		
deflection of control	rev/min Control rod travel mm	rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min mm	
1	2	3	4	5	6	7	8	9	10	11
max:	1220	15,2-17,8	_	-	-	approx 12		min.8,5 6,9-7,1	250 550	
approx. 64	9,7 4,0 1400	1190-1200 1270-1300 0 - 1,0					465-5	25 = 2,0	1150	
				i		(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) Fuel delivery characterist high idle speed (5b)			rery characteristics 5a speed 5b	idle	fuel delivery 6	Torque- travei	control 5
rev/min	cm³/1000 strokes .	rev/min 4a		rev/min	rev/min cm³/1000 strokes		cm ³ /1000 strokes	rev/min	travel mm
1	2	3		4	5	6	7	8	9
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200	*	LDA 1150	0,9 bar 121,0-125,0 (118,0-128,0		110,0-140,0	1050 1020	11,2+0, 11,5+0,
LDA 1025	0,9 bar 134,0-138,0 (132,0-140,0)			LDA 500	0 bar 85,0-89,0 (82,0-92,0)			800	11,6+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

300			
Pump governar	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 PLS 3073 RQ\ PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

K14

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Test Specifications Fuel Injection Pumps ① and Governors

WWP 001/4 KHD 19,0 1

1. Edition

toill-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (1 95-2 15)	mm (from BDC)								
Rotational speed rev/min 1	travel		Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1150	10,3+0,1	9,1-9,3	0,3(0,6)								
300	6,4-6,6	0,9 - 1,5	0,3(0,5)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control	travei	וכי	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
1	rod travel mm	mm rev/min (2	. ``	of control lever	rev/min	mm (4)	of control lever	rev/min	тт 3	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1150	15,2-17,	8	-	-	-	approx.	100 300	min. 8,0 6,4-6,6	250 550	0,2-0,8 2,8-3,2
approx. 66	4,0	1190-120 1240-127					2.2	300	0,4-0,0	850 1150	4,7-5,0 7,9
	1350	0 - 1,0					310-380				
	<u> </u>						(3a)	<u> </u>			

Torque control travel a =

ШШ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roo Test oil ten		intermediate spred		Fuel delivery characteristics 5a Shigh idle speed 5b		Starting XXXX switchir		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min (40)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 1150	0, 5 bar 90,5 - 92,5 (88,5 - 94,5)	1190-1200	*	LDA 775 LDA 500	0,32 bar 94,5 - 98,5 (92,5 - 100,5) 0 bar max. 76,5 (max. 78,5)		119,0-129,0 at 14,4- 14,6 mm RW	500 775	10,3+0,1 10,7+0,1 10,7+0,1 10,5+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PE 12 A LS2453 withAB 1056 DL	0,7	0 0,33 0,28	10,7 - 10,8 10,2 - 10,3 10,6 - 10,7 10,4 - 10,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 6,1 K 1 2. Edition

PES 6 A 85 D 410/3 RS 2592

RQV 300-1250 AB 1158 L

supersedas 82 companyKHD

engine: BF 6 L 913 GMC-Fahrzeug

118 kW (160 PS) at 2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (2.15-2.35)	mm (from BDC)	mm (from BDC)								
Rotational speed	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)						
1250	13,2+0,1	8,8-8,9	0,3(0,45)	2	3 -	6						
	8,7-8,9	1,0-1,6		ļ								
300	0,7-0,9	1,0-1,0	0,2(0,4)		,							
			_									

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed	•	Intermediate	rated sp	eed	Lower rated	speed			
	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a 3	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	1290	15,2-17,8	-	-	-	approx.		min.10,3		0,5-0,8
approx. 66	12,2 4,0 1500	1290-1300 1380-1410 0-1,0				350-450	_	8,7-8,9		3,6-3,7 5,3-5,4 8,1
Torque contra						(3a)				

Forque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp, 40°C (104°F) 2		intermediate speed		delivery characteristics (5a) idle speed (5b)		fuel delivery 6	Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes .	rev/min (48)	rev/min	cm³/1000 strokes	1_	cm ³ /1000 strokes	rev/min	travel mm
LDA 1250 LDA 1100	0,7 bar 87,5-88,5 (85,5-90,5) 0,7 bar 87,5-90,5 (85,5-92,5)	1290-1300*	LDA 800 LDA 500	0,7 bar 89,5-92,5 (87,5-94,5) 0 bar 59,0-60,0 (57,0-62,0)	100	118,5-128,5 at 17,8- 18,2 mm RW	800	13,2+0, 14,0+0, 13,7+0, 13,4+0,

Checking values in brackets

1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1) .
PES6ARS2592	0,46			13,6 - 13,7
withAB 1158L			0,70	14,1 - 14,2
• .			0	12,3 - 12,4
			0,28	12,5 - 12,7

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 11,1 p

7. Edition

estoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 850 DL (1) RQV 250-1100 ABV 14815 (2)

supersedes 2.82

company: MAN

engine: D 2566 M, MF 177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,9 - 1,4	0,3(0,5)			-

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. AB 850 DL (1)

Upper rated s	peed		Intermediate	rated sp	ed	Lower rated	speed		Stidings	leeve travel
	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
1.	mm		lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
approx. 50	1140	14,4-17,6	-	-	-	approx.	100	min. 7,2	200	0,5-1,2
approx.	11,0	1140-1150	·			13	250	5,6-5,8	600	3,8-4,1
42	4,0	1180-1210					315-	375=2,0mm	1140	8,3
ĺ	1300	0 - 1,0					450	0 -1,0		
						(3a)				

Torque control travel a = 0

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) 2	limitation intermediate speed			ldle switchir	ng point	travel	Control 5 Control rod travel
rev/min	cm-/1000 strokes .	rev/min	rev/min	cm*/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1100	124, 5-126, 5 (122, 5-128, 5)		750 500	113,0-116,0 (111,0-118,0 max. 113,5 (max. 115,5)	.250	121,5-131,5 bei 14,0 - 14,6 mm RW 6,0 170(80-190)		12,0+0,1 12,1+0,1

Checking values in brackets

1 mm less control rod travel than col. 2

Upper rated s	peed			Intermediate	rated spe	eed	Lower rated	speed		Slidings	eeve travel
Degree of deflection	Control	Control rod travel	(1a)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	onging s	1
of control lever	rodtravel mm	ten/wiu	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6	7	8	9	1Ó	11
max.	1260	15,2-17	,8	-	-	_	approx	100	min. 7,5	200	0,7-0,9
	11 0	1140-11	50 50				12	250	5,9-6,1	500	2,8-3,1
approx.	4,0 1400	1260-12						320-	380=2,0mm	800 1100	5,2 - 5,5 7,2
							(3a)				

Torque control travel a

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem	Istop	Irmitation Intermediate speed	high idle s	rery characteristics 5a peed 5b	Idle	fuel delivery 6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	127, 5-129, 5 (125, 5-131, 5)	•	50C	min. 113,5	100 250 100-	14,0-14,6 mm RW 6,0 170 (80-190)	-	•

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Sliding s	leeve travel
deflection		Control rod travel	(ta)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		1
of control lever	rod travel	rev/min	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
				•							
		<u> </u>									
					_		(3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		Rotational-speed (2b) Ilmitation intermediate speed (4a)	Fuel deliv high idle s	rery characteristics 5a speed 5b	Starting Idle switchin		Torque- travel	Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
			<u>.</u>					
					1			
						I		
		}						

Checking values in brackets **En**

* 1 mm less control rod travel than col 2

WPP 001/4 MB 5,7 s 2

3. Edition

PES 6 A 90 D 410 RS2293

and Governors

EP/RSV 350-1400 AO B2002 L

(1)supersedes 10.78

AO B2053DL

En

company: Daimler-Benz

engine: OM 352

(1 - 100kW - 130PS) (2 - 82 kW - 111PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rc: tional speed	Control rod travel mm	Fuel delivery (1) cm³/100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery (2) cm ³ /100 strokes	Spring pre-tensioning (torque-con:rol valve) mm
1380	10,0+0,	1 6,1-6,3	0,3(0,45)	9,0	5,1-5,2	
350	7,1-7,3	0,9-1,5	0,2(0,4)	+0,1 7,4-7,6	0,9 - 1,5	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

2002L (1)

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				approx.	350	6,7	-	-
approx	x =	4,0	·			30	100 350	min. 19 7,1-7,3		
61 ⑤	9,0 4,0 1600	1420-1430 1505-1535 0,3-1,7						610=2,0 0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational- speed limitat.			Starting Idle	fuel delivery	(5a) Idle stop	
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm
(1) 1380	61,5 - 62,5 (59,5 - 64,5)	1420-1430*			1517	14,2-14,8 mm RW 3,6- 4,6 mm RW	350	7,2

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

2053D!. (2)

1 Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	ed Control rod travel mm	Degree of deflection of control lever	rev/min	eed Control rod travel mm 9	3 For	que control Control rod travel mm
loose	800	0,3-1,0			approx.	350	7,0	1380	9,0
approx.	x	= 4,0			29	100	min. 19	1000	9,5
61	8,0 3,4 1600	1420-1430 1455-1485 0,3-1,7				350 530- 700	7,4-7,6 590=2,0 0 - 1	500	9,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery	Sa) Idle	stop
Test oil tem rev/min 1	p 40°C (104°F) cm³/1000 strokes 2	Note changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(2) 1380	51,0 - 52,0 (49,0 - 54,0)	1420-1430 *	1,000	55, 5 - 58, 5 (53, 5 - 60, 5)	100	72,25 - 82,25	350	7,5
			© ₆₀₀	46, 0 - 48, 0 (44, 0 - 50, 0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO-4113

B. Governor Settings

Degree of deflection of control	ated speed	Control rod travel mm 3	Intermediate Degree of deflection of control lever		Control rod travel mm	4 Lower Degree of deflection of control lever	rev/min	ced Control rod travel mm	que control Control rod travel mm
				<u> </u>				•	
(5)									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad stop	6 Rotational- speed limitat.		el delivery aracteristics	Starting Idle	fuel delivery		stop
Test oil tem	p. 40°C (104°F) cni ³ /1000 strokes	Note changed to	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes		Control rod travel rnm
1	2	3	۱.	5	6	7	8	9

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0aI 2. Edition

VE 5/10 F 2400 L 35-2 (P) 0 460 405 003;

supersedes, 82 companyVWW engine: Audi 100

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,14

+ 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 idle speed regulation	375	6,0-10,0	cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min.53,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	İ				

2. Test Spe	cifications	checking values in brackets ()		
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3) 5,1-5,9	2400 9(4,8-6,2)
2 2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,8-3,4			2400 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55,1-138(40-153)		55-138	2400 (40-153)
2.3 Fuel deliveries		<u> </u>		3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2650 2500 2400 1400 750	6,0-12,0 (5,0-13, (24,0-32) 29,5-31,5 (28,2-32) (33,2-37) 24,5-27,5 (23,0-29)	(8,8) (8)	K KF MS SVS	5,7-5,9 1,7-1,9 max.3,0
switch-off elect.	400	0		XL B	9,0-12,5
idle stop	500 375	max. 3.0 (4.0-12,0))	Observations	
End stop	400 500	min. 16,0 max. 23,0			
2.4 Solenoid	max. cut+n voltag	e xxx min. 10.0 V rated voltage 12V.			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0a 3. Edition

VE 5/10 F 2400 L 35 (P) .0 460 405 001; 002

company: VWW engine: Audi 100

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

mm + 0,02 (0,04)0,14 Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1 2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0	cm³/1000 strokes		2,5(3,0)
1.5 Start	100	min. 53,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Spe	ecifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	500 2,8-3,4		2400 7,0-8,1
Overflow delivery	$n = rev/min$ $cm^3/10 s$	500 55-138(40-153)		2400 55-138(40-153)

	cm ³ /10 s	55-138(40-	153)		33-130(40	1557
2.3 Fuel delivenes Speed control lever	Rot speed	Fuel delivery	The second secon	Charge air press	3. Dimen	sions for assembly and adjustment mm
Speed Control level	rev/min	cm ³ /1000 strokes		bar (kgt/cm²)		
End stop	2650 2500	6,0-12,0	(5,0-13,0) (24,0-32,0)		K	
	2400	29,5-31,5	(28, 2-32, 8)		KF	5,7-5,9
	1400	04 5 07 5	(33,2-37,8)		MS	1,7-1,9
	750	24,5-27,5	(23,0-29,0)		svs	max. 3,0
					χк	18,5-20,5
					AXL	9,0-12,5
switch-off					8	
elect.	400	U				
Idle stop	500 375	max. 3,0	(4,0-12,0)		Observations	
End stop	400 500	min. 16 max. 23				
2.4 Solenoid	max. cut-in volt	age XXXX min.	10,0 V ge 12V.			

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 BÜS 12,3 g

3. Edition

PE 6 P 120 A 821 LS 282

RQV 300-1050 PA 249 D (1) RQV 300-1100 PA 258 D (2)

RQV 400-1050 PA 316 D (3)

Testing with T nozzles and fuel lines 8x2x1000 according to .. WPP 110/2 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersede 10.75

company MAN-Büssing

engine D 3256 BTXU

(290 PS - 1)

(320 PS - 2) D 3256 BTYU

(316 PS - 3)

A. Fuel Injection Pump Settings

2.8 + 0.1

Port closing at prestroke

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ¹ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	12	20, 1 - 20,8	0,8			
600	9 15	9,8 - 11,3 22,2 - 24,3				
200	9	5,3 - 6,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV .. 249 D (1)

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	1	Stiding sti	eeve travel
Degree of deffection of control fever		Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Torque-c	ontrol travel
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1050	15,0-18,8	-	-	-	ca. 13	150	9,4-11,0	1050	8,3
	1100 1180 1260	10,0-14,8 0 - 7,4 0					250 350 450	6,9- 9,2 2,8- 5,4 0	1030	0 0,6-0,7

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roi Test oil fen	-	Rotational-speed limitation	Fuel deliv	very characteristics	Starting Idle switchin	fuel delivery	Intermed rotationa Torque- travel	l speed
rev.min	cm1.1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	mm
1	2	3 .	4	5	6	7	8	
LDA 1050	0,7 bar 226,0-228,0	1090-1100 *	LDA 800	0,7 bar 206,0-210,0	100	16 mm RW		
LDA	0 bar		500	185,0-191,0	Chang	e-over point		
1050	207,0-211,0				max.	200 min ⁻¹		
(Incr	ease by \pm 3,0	cm³)		·		_		L

Checking values in prackets

1 mm less control rod travel than coi. 2

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. • 1980 by Robert Bosch GmbH. Postfach 50. D. 7000 Stuttgarf 1. Printed in the Feideral Republic of Germany. Imprime en Republique Feiderale d. Allemagne par Robert Bosch GmbH.

Upper rated s	•		_	Intermediate rated speed			Lower rated	speed	Sliding sl	Sliding sleeve travel		
Degree of deflection of control lever	Control rod travel	Control rod travel mm rev/min	(1a) (2a)	Degree of deflection of control lever	rev/min	Control root travel	, ①	deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	_	4	5	6		7	8	9	10	11
ca. 50	1140	14,4-17	7.4	_		-		ca. 13	100	7,6-10,	3 200	0,6-1,2
	1180	1 -	-						200	5,7- 8,	6 500	3,4-3,7
	1220		• .						300	2,5-5,	4 900	5,6-6,0
	1280	1						į	410	0	1140	8,3
	1200			•					a andrew		1100	0
								(3a)			500	0,4-0,5
				<u> </u>	<u> </u>	<u> </u>			<u> </u>			L

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2)		Rotational speed (20) limitation intermediate speed	Fuel deliv	rery characteristics 5a speed 50	Starting findle switching		Torque- travel	Control cod	
rev/min	cm 1/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm:/1000 strokes	rev/min 8	travel mm 9	
LDA 1100	0,7 bar 236,0-238,0	1090-1100 *	LDA 800 500	0,7 bar 194,0-198,0 192,0-198,0	100	16 mm RW			
LDA 1100	0 bar 204, 0-210, 0				Chang	e-over point			
(Inc	ease by ± 3,0	cm³)			max.	200 min ⁻¹			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV .. 316 D (3)

Upper rated s	peed			Intermediate	rated spe	ed		Lower rated	speed		Sliding sl	eeve travel
Degree of deflection	,	Control rod travel	(la)	Degree of deflection	! !	Control travel	rod	Degree of deflection of control		Control rod travel		1
of control lever	rod travel	rev/min	(2a)	of contro- lever	rev/min	mm	•	lever	rev/min	mm (3)	rev/min	mm
•	2	3	$\overline{}$	4	5	6	•	-	В	9	10	11
ca. 50	i	15,0-18	-	_	-		_	ca. 13	:	8,9-11,0	1075	8,3
	1120	10,2-14	,5	1	Į				300	7,1-10,0		
	1200	0 - 7	,8						400	2,8- 5,5	1070	0
	1280	0		1		Ì			490	0		
						1					600	0,5-0,7
								(3a)				
	<u> </u>	0.6		<u> </u>	<u> </u>	<u> </u>		1 =			1	<u>.</u>

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ten	-	intermediate speed	Fuel deliv	rery characteristics 5a speed 5b	Starting Idle switchin	fuel delivery 6	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 1050	0,85 bar 239,0-241,0	1090-1100 *	LDA 800 500	0,85 bar 212,0-216,0 201,0-207,0	100	16 mm RW		
LDA 1050	0 bar 183, 0-189, 0				Chang	: ge-over point:	•	
(Inc	rease by \pm 3,) cm³)			320-	270 min-1	!	./.

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500	rev/min decreasing pressure - in XXXXXXX	bar gauge pressure	BÜS 12,3 g - 3 -
Pump/governor	Setting Gauge pressure ≈ bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm XXXXXXXX
282with249 D	0,40 - 0,42	0,22 - 0,26	- 0,1 mm - 1,1 mm
282with258 D	0,46 - 0,49		- 0,1 mm Difference ca. 2,3 mm
282 with 326 D	0,68 - 0,75	0,24 - 0,28	- 0,1 mm - 3,0 mm

Notes

(1) when n =

1050

rev/min and gauge pressure = 0,85

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,4 p

PES 4 MW 55/320 RS 22 RW 375/2200 MW 27-1 0 403 244 009 1 - 3 - 4 - 2 0 -90 -180-270 - 0,50 (0,75)

company Daimler-Benz engine OM 616 - US 51,5 kW (70 PS)

¹ All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,10 - 2,20

mm (from BDC)

21 mm

Control rod travel

ohne ADA (2,05 - 2,25)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /1(=7) strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0,	4,0 - 4,1	0,25(0,3)			
375	6,9-7,1	0,65-0,75	0,1 (0,15)			
1600			0,25(0,3)			
2180			0,25(0,3)			
				•		

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

ohne ADA

Lower rated sp	eed		Upper rated	l spe	eed		Variations in co	ntrol rod trave	el		
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control		Control rad travel	Rotational speed	! !	Rotational speed	Control rod travel		
lever	mm	rev/min	lever		mm	rev/min	į ,	rev/min	mm		
1	2	3	4		5	6	7	8	9		
27-31 (1)	min.12	100	69 (7)	12,6-12	8 2180	(12)	20,5-21,	5 100		
(2)	6,9-7,1	375	((8)	11,7	2280-2300		13,2 - 13,			
(3)	**	385	(<u>(e</u>	4,0	2650-2710	(14)	13,5-13,	6 1000		
4	-	-	1	10	0,0-1,0	2950		į			
(5)	2,0	650-700	1 7	$\stackrel{\smile}{\cap}$	-	-	(a)	Switching po	ent		
	İ		\	•				250-300	(230-320)		

C. Settings for Fuel Injection Pump with Governor Mounted

ohne	ADA
------	-----

Full-load de	elivery (19)	Full-load speed 8a	Variations	[17]	Starting f	uel delivery	
Test oil tem	p 40°C (104°F)			(18)		i	Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2180	40,5-42,5 (39,5-43,5)	2280-2300* (2270-2310)	1600	40,0-42,0 (39,0-43,0)	100 375	min. 55,0 6,5-7,5 (6,0-9,0)	6,0 1,0 (1,5)
			1000	40,0-41,0 (39,0-42,0)	2550	15,0-21,0 (14,0-22,0)	2,5 (3,0)

Checking values in brackets

* 1 mm less control rod travel than in Column 2

1. Test sequence - Change in VDT-W-420/300 Suppl. 2, Ed. 2

Section 4.1 - Adjust the spring retainer (compensation capsule)

New text:

Run the injection pump at $n=1,000\,\mathrm{min}^{-1}$. Fix the control lever at 690. Using a pin wrench, turn in the spring retainer so far that the control-rod travel is reached at $n=1,000\,\mathrm{min}^{-1}$. Pin wrench = KDEP 1064/1. Measure the full-load delivery. Fix the control lever at 490. Drive the injection pump at $n=1,000\,\mathrm{min}^{-1}$. The control-rod travel must be $8,6-9,3\,\mathrm{mm}$.

Section 4.3 changes as follows:

Drive the injection pump at n = 800 min⁻¹. Set the control lever so that the control-rod travel reaches 1.4 - 1.7 mm. The control lever must lie within the permissible tolerance. Move the idle stop up against the control lever and lock it there. Reduce the pump speed to n = 375 min⁻¹ and release the leaf spring (32) with the lower adjusting screw (28) until the control-rod travel specified in the Test-Specifications Sheet is reached. Carry on according to the Testing Instructions, taking into account that Section 4.8 no longer applies.

 Testing of Sections A, B and C is carried out without altitude pressure compensator (ADA) aneroid box. After this test has been completed, the aneroid box is refitted.

Testing the governor with the ADA aneroid box.

Pump speed	Pressure (abs. in mbar)	Reduction from the maximum full-load control-rod travel (mm)
1,000	840	1.0 - 1.2 (0.95 - 1.25)
1,000	907	0.3 - 0.6 (0.25 - 0.65)
1.000	667	2.4 - 2.9 (2.35 - 2.95)

- 3. Pin projection dimension = $16.65 \pm 0.05 \text{ mm}$
- 4. ** At this pump speed, apply pressure to the control lever and increase the control-rod travel by 0.4 $^{+0.1}$ mm. The idle delivery may not change.

- 5. Setting angle Idle/full-load $38 42^{\circ}$
- 6. Sensing-lever setting: Bring sensing lever into contact at $n=375~\text{min}^{-1}$ (control lever in full-load position). Control-rod travel must be 0.1 (0.1 0.2) mm more than the full-load control-rod travel at $n=1,000~\text{min}^{-1}$.
- 7. Pneumatic shut-off check:

Move the control lever to the idle position. Drive the injection pump at n = 375 min $^{-1}$. At P μ = 450 mbar (338 mm Hg) (vacuum), the control rod must move rapidly to control-rod travel = 0 mm position.

8. Mechanical shut-off check:

Overcome the idle stop at the control lever. Drive the injection pump at $n = 200 \text{ min}^{-1}$. The control-rod travel must remain below 5 mm.

Test Specification Testoil-ISO 411340 Fuel Injection Pumps

and Governors

WPP 001/4 MB 5,7 n

Edition

PES 6 A 90 C 410 RS 2293, Z RS 2293Y

RQV..AB740L,780L,781L (1-2) RQV..AB740L (3) RS2293W,X RQV..AB740L (4-5)

supersedes 77 companDaimler-Benz _{engine} OM 352 A

(1 - 130 PS) (2 - 168 PS) (3 - 145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(4 - 156 PS)

A. Fuel Injection Pump Settings

(5 - 130 PS)

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-lensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	9	4,5 - 5,0	0,4			
	6 12	1,8 - 2,6 7,3 - 8,3				
200	9	2,0 - 2,8				·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 300-1425 AB740L

Upper rated s	speed		Intermediate rated speed			Lower rated	speed		Siiding sti	eeve travel
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	-	ontrol travel mm
1	2	3	4	5	6	7	8	9	10	11
approx. 66	1425 1500 1550	16,0-19,4 11,6-16,0 8,2-13,4	-	-	-	approx.	300 450	6,6-7,8 4,9-6,4 3,0-4,2	400 1425	1,4-2,2 8,1
	1650 1790	1,4-8,0					600 760	1,3-2,8	-	-

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te	•	Rotational-speed limitation	Fuel deli	very characteristics	Starting idle switching	fuel delivery ng point	Intermed rotationa Torque- travel	speed
rev/min	cm ³ /1000 strokes	rev/min	rev/min cm³/1000 stroke		rev/min	cm 1/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
(1 -	2293 with 740							
1400	61,5-62,5 (59,5-64,5)	1455-1465 *			100	71,0-81,0 13,9-1	+,3 m	n RW
		-			250-	180 min ⁻¹		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.82

Upper rated s	peed			intermediate	rated spe	ed	Lower rated	speed		Stiding st	eeve travel
Degree of deflection	rev/min Control	Control rod travel	(la)	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	_	①
of control lever	rod*(avel	mm rev/min	(2a)	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
	2	3		4	5	6	7	8	9	10	11
approx.	1425 1500 1600	16,0-19 10,8-15 3,3-10	,3	-	-	-	approx. 10	200 300 450 600	6,0-7,4 4,9-6,6 3,0-3,9 1,4-2,8	400 1425	1,2-2,2 8,3
	1650 1770	0 - 7	,4					700	0	-	-
							За				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ter		Rotational-speed (limitation intermediate speed		Fuel deliv high idle s	ery characteristics 5a peed 5b	Starting I Idle switchin	\sim	Torque- travel	Control Control roo
rev/min	cm ¹ /1000 strokes	rev/min	(4a)	rev/min	cm ⁴ /1000 strokes 5	rev/min	cm-/1000 strokes 7	rev/min 8	travel mm 9
(1 - 1400	2293 with 780 61,0 - 63,0	Ī ,	*			100	72,25-82,25	700(780)
						250-	180 min ⁻¹	1300 (781)

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV 300-1425 AB740L(2)

Upper rated s	speed		Intermediate	rated spe	ed	Lower rated	speed		Sliding sl	eeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control	i	Control rod travel	Degree of deflection of control	-	Control rod travel		1
lever	mm	rev/min (2a	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	
1	2	3	4	5	6	7	8	9	10	11
approx 66	1500 1550	, ,		-	_	env. 10	100 300 450 600	6,6-7,8 4,9-6,4 3,0-4,2 1,3-2,8	400 1425	1,4-2,2 8,1
<u>.</u>	1650 1790					3a	760	0	-	-

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed		very characteristics 5a cpeed 5b	Starting Idle switchin	fuel delivery 6	Torque- travel	Control rod
rev/min	cm³/1000 strokes 2	rev/min 4a)	rev/min	cm ³ /1000 strokes 5	rev/min 6	7	rev/min 8	mm 9
(2 - 1375	2293Z with 74 73,5 - 75,5	0) 1435-1445 [*]			100	72,25-82,25		
					250-	180 min ⁻¹		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV 300-1425 AB780L, 781L (2)

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed		Sliding st	eeve travel
Degree of deflection of control lever	1 -	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 1
1	2	3		4	5	6	7	8	9	10	11
approx. 68	1500 1600	16,0-19 10,8-15 3,3-10	,3	-	-		approx 10	200 300 450	6,0-7,4 4,9-6,6 3,0-3,9	400 1425	1,2-2,2
	1650 1770	0-7,4 0		•				600 700	1,4-2,8	_	-
							(3a)				

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo		Rotational-speed limitation intermediate speed	\smile	Fuel deliv	rery characteristics (5a)	Starting Idle switchin		Torque- travel	control 5
rev/min	cm ¹ /1000 strokes	rev/min	(4a)	revimin	cm ³ /1000 strokes	rev/min	cm=/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(2 - 2	293Z with 780								
1375	73,5-75,5	1435-1445	*			100	72,25-82,25	700(780)
1									
1						250-	! 180 min ⁻¹	1300	(. 781)

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 300-1425 AB740L (3)

Upper rated s	speed			Intermediate	rated spe	ed	Lower rated	speed		Stiding st	eeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel mm	(la)	Degree of deflection of control	! !	Control rod travel	Degree of deflection of control		Control rod , travel		①
lever	mm	rev/min	(2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
approx 66	1425 1500 1550 1650	16,0-19 11,6-16 8,2-13 1,4-8,	,0 ,4		-	-	approx 10	100 300 450 600	6,6-7,8 4,9-6,4 3,0-4,2 1,3-2,8	400 1425	1,4-2,2 8,1
	1790	0	J					760	0	-	-
	-						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro- Test oil ter	•	Rotational-speed (2b) Ilmitation intermediate speed (4a)	Fuel deliv high idle s	rery characteristics 5a	Starting Idle switchin	fuel delivery 6	Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
(3 -	2293Y with 740)	1						
1400	70,0 - 72,0	1455-1465 *			100	72, 25-82, 25		
							a constitution of the cons	
	3 1	i I			250	-180 min ⁻¹		

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 300-1425 AB740 (4)

Upper rated sp	peed			intermediate	rated spe	ed	Lower rated	speed	İ	Sliding sleeve trave	
Degree of	rev/min Control rodtravel	travel mm	1a 2a	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min		rev/min	mm 11
1	2	3		4	5	6	7	8	9	10	
approx 66	1425 1500	16,0-19	,0		-	_	approx.	100 300 450	6,6-7,8 4,9-6,4	400	1,4-2,2
	15.0 1650 1790	8,2-13 1,4-8, 0					(3a)	600 760	3,0-4,2 1,3-2,8 0	-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de	•	limitation	26)	Fuel deliv	ery characteristics 5a peed (5b)	Starting to ldie switching		Torque- travel	control (5)
Test oil terr	cm ³ /1000 strokes	intermediate speed rev/min	_	rev/min	cm³/1000 strokes			rev/min	Control rod trave! mm
1	2	3		4	5	6	7	0	
•	293W with 740	T.						and the second s	
1400	71,0 - 73,0	1455-1465	*			100	72,25-82,25		
		1						ļ	
<u> </u>								1	
						250-	180 min ⁻¹		

Checking value in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 300-1425 AB740L (5)

Upper rated s	peed		Intermedi	ate rated spe	ed	Lower rated	speed	:	Stiding s	eeve travel
Degree of deflection of control	Control rod travel	mm	Degree of deflection of control lever	1 <u>;</u>	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm (1)
lever	2	3	4	5	6	7	8	9	10	11
approx. 66	1425 1500 1550	16,0-19, 11,6-16, 8,2-13,	0 •	-	-	approx 10	100 300 450	6,7-7,8 4,9-6,4 3,0-4,2	400 1425	1,4-2,2 8,1
	1650 1790	1,4-8,0				3a	600 760	1,3-2,8	-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem	•	intermediate speed	Fuel deliv high idle s	rery characteristics 5a append 5b	Starting I Idle switchin	fuel delivery (6)	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes 2	rev/min (4a)	rev/min	cm ³ /1000 strokes 5	rev/min 6	7	rev/min 8	9
(- 22 1400	93% with740) 57,0-59,0	1455-1465			100	72,25-82,25		
					250-1	 180 min ⁻¹		

1 mm less control rod travel than col

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 1,5f 2. Edition

n

VE 4/9 F 1500 R 25-3 R 25-3 P

0 460 494 035

Over flow temperature 45°C

supersede 482 company: VWW engine: EA 086

0 460 494 036
All test specifications a
Pre-stroke setting

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,4-3,8	mm		
1 2 Supply pump pressure	1500	5,4-6,0	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	29,5-30,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes	1	
1 4 Idle speed regulation	415	6,0-10,0	cm ³ /1000 strokes	t	2,5(3,0)
1.5 Stark	100	min.38,0	cm³/1000 strokes	! ! !	
1.6 Full-load speed regulation	1550	20,0-24,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	: :	: 1		1	

2. Test Spe	cifications	checking values in b	rackets ()	. III II		
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1	,0-2,4)	1500 (2,9-4,3)		
2 2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,4-3,0				
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-	-153)		1500 55-138(40	-153)
2.3 Fuel deliveries			and the second s		3. Dimer	tor assembly
Speed control lever	Rot speed	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	1610 1550 1500	max. 9,0	(19,0-27,0) (27,7-32,3)		K KF MS	3,2-3,4 5,7-5,9 1,2-1,4
	600	18,0-21,0	(16,5-22,5)		svs XK XL	max.3,6 19,5-21 9,2-12
switch-off					A	
elect.	400	bei 2,5 V	0		В	
Idle stop	450-550 415	0	(4,0-12,0)		Observations	
End stop	400 500	min. 13,5 max. 19,5				
2 4 Solenoid	max cut-in voltag	e xxx mir rated vo	10V.12V.			<i>‡</i>

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VMA 2,2a Edition

VE 4/10 F 2100 L 75

0 460 404 024

Over flow temperature 45° C

6.82 supersedes

VM-Motori HR 492 HT engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting	mm			see VD1-W-460/	
1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1600	6,3-6,7	mm	0,7	
1.2 Supply pump pressure	1600	5,8-6,4	bar (kgf/cm²)	0,7	
1.3 Full-load delivery without	600	34,0-37,0	cm ³ /1000 strokes	0	2,5 (3,0)
charge-air pressure Full-load delivery with	1600	47,5-48,5	cm³/1000 strokes	0,7	
charge-air pressure 1 4 idle speed regulation	400	15,0-19,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 65,0	cm³/1000 strokes	0	•
1 6 Full-load speed regulation	2100	41,5-44,5	cm ³ /1000 strokes	0,7	
1.7 Load-dependent start of delivery				† }	<u> </u>

2. Test Spec	cifications	checking values in b	orackets ()			
2.1 Timing device DA=0,7 bar	n = rev/min mm	1000 1,9-2,7 (1,	l .	1600 (5,8-7,2)	9,3-9,	2100 9 (8,9-10,3)
2.2 Supply pump LDA=0,7 bar	n = rev/min bar (kgf/cm²)	400 1,5-2,1			7	2100 ,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-			55-	2100 138 (40-153)
2.3 Fuel delivenes		Fuel delivery		Charge-air press	3. Dimen	sions for assembly and adjustment mm
Speed control lever End stop switch-off	Rot. speed rev/min 2450 2300 2100 1600 +700 600	max. 5,0 24,5-30,5 31,5-34,5	(23,5-31,5) (40,7-45,3) (30,7-35,3) (45,7-50,3) (41,5-47,5) (32,5-38,5)	0,7 0,7 0,7 0,7 0 0,7 0,3 0	K KF MS SVS + FH XK BXL	3,2-3,4 5,7-5,9 1,4-1,6 4,4-4,6 1,8-2,4 20,2-22,2 10,0-13,3
'dle stop End stop	550-750 400 400 500	0 min. 37 max. 37	(13,0-21,0)		comper = 4,2	old-pressure isator stroke mm. ction at the
2.4 Solenoid	max. cut-in voit		. 10,0 V ltage 12V.		adjust	ting nut (46)

and Governors

5 Edition

PE 6 P 100 A 720 RS 15 1 - 5 - 3 - 6 - 2 - 4 je 60° RO 250/1100 PA 269 R PA 278 R * supersedes 11.81

company: Daimler-Benz OM 355

*278 Functional check of roll-start block: Adjust solenoid until control rod is 1,5...2,5 mm from stop.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.80-2.90

mm (from BDC) RW 10,5

Rotational speed rev/min	Control rod travel mm 2 -	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0	11,85 - 12,05	0,3(0,6)			
250	+0,1 7,9-8,1	1,70 - 2,30	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Gövernor Settings

Checking PRG che		Full-load s Setting po			\sim	Idle spee Setting p			cifications 5	Torque c	Control rod
rev/min	travel	rev/min	rod travel rnm 4	red travel mm 5	rev/min 6	rev/min 7		rev/min 9	travel mm 10	1	travel mm 12
600	15,6-16,4	600	16,0	12,0 4.0	1125-1145 1195-1230	•	6,0	100 250	min.7,5 5,9-6,1		13,0-13,1 13,2-13,33
1350	0 - 1							385-	425 =2,0		

Torque-control travel

Speed regulation: Al 125-1145 min -1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor of Test oil ter	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fu	uel delivery d Control nd travel
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes:/ mm
1100	118, 5120, 5 (116, 5-122, 5)	450 ,	450	101,0 - 105,0 99,0 - 107,0)	100	140-160

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 b 1

PES 6 P 120 A 320 RS 417

RQV 300-1150 PA 527 K

supersedes 82 company RVI

3. Edition

Values apply to

Testoil-780

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

engine: MIDS 062030 158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port-closing mark 9.5° camshaft after port closing of cylinder 1.

mm (from BDC) Port closing at prestroke (2.75 - 2.95)Control rod travel Fuel delivery Spring pre-tensioning Difference Control rod **Fuel delivery** Rotational speed (torque-control valve) cm³/ 100 strokes cm³/100 strokes mn cm³/100 strokes 14,8 - 15,00,5(0,9)8,5-8,6 1150 300 4,1-4,3 1.8 - 2.40,5(1,2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection	peed rev/min Control rod travel mm	Control rod travel mm rev/min 28	Intermediate Degree of deflection of control lever 4	rated spi rev/min 5	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	Sliding s rev/min 10	mm
max. ca. 58	7,5 4,0	15,2-17,8 1205-1215 1275-1305 0-1,0	-	-		ca. 10 330-345		4,1-4,3	550	0,4-0,7 3,6-3,7 5,1-5,2 7,5

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc	d stop	limitation	Fuel deliv	ery characteristics 5a peed (5b)	Starting I	_	Torque- travel	Control rod
rev/min	np. 40°C (104°F) (2) cm³/1000 strokes	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel
1150	147, 5-149,5 (144,5-152,5)	1205-1215*	750 500	132,0-138,0 (129,0-141,0) 80,0-86,0 (77,0-89,0)	100	120,0-140,0	350 750	8,5+0,1 7,0+0, 4 7,7+0,2 7,2+0,3

Checking values in brackets

* 1 mm less control rad travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,2 n

2. Edition

En

PE 6 A 99 D 320 RS 2577

RSV 250-750 A 7 B 2125 R

superseded 2.80 company DAF DD 575

** Set idle-auxiliary spring at 2,0 mm.

See Service Information VDT-I-DAF 004.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RW = 9.0 mm:

Port closing at prestroke

2,13-2,33,

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Differenc e	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	11,0	7,4 - 7,6	0,4(0,55)			·
	+0,1					
250	5,9-6,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel

B. Governor Settings

9 mm and max. = 2.5 - 3.5

Upper	rated speed		Intermediate	e rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/ı	Control rod travel
1 _	2_	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 22	250	6,0	750	11,0-11
	X =	5,0					100	min. 19	700	11,0-11
5a.4	770-78 795-81 955 =						250 260 - 3	20=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.	Starting fuel delivery characteristics Starting fuel deliver		fuel delivery	(5a) Idle stop		
Test oil temp rev/min	t oil temp. 40°C (104°F) Note: changed		rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
750	74,0 - 76,0 (72,0 - 76,0)	760-770*	-	-	100	19,5-21,0 mm RW		
				·				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Fuel Injection Pumps and Governors

WPP 001/4 MB 11,8 m 1. Edition

PE6P100A720RS15

RSV350-750P1/365R

Daimler-Benz company: Da

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed	Control roa travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
730	13,0+0,	10,6-10,8	0,3(0,6)			
350	7,9-8,	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	750	0,3-1,0	-	_	_	ca.17	350	8,0	-	-
	x =	2.05					100 350	min.19,5		
ca. 33	12,0 4,9 850	750-760 ?\$0-795 0,3-1,7	*				355-41			

^{* *} Set idle-auxiliary spring at 1.5 - 2.0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat.		el delivery tracteristics	Starting fuel delivery ldle		5a Idle stop		
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
730	106,0-108,0 (104,0-110,0)	750-760 *	-	-	100	140,0-150,0	_	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP Q01/4 SCA 8,0 1 1. Edition

En

PE 6 P 110 A 720 RS 3076

RSV 350-1200 P1/462

company Scania engine D S 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4 (3,25-3,45)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
900	11,9±0,1	12,1-12,3	0,4(0,8)			_
940	4,8-5,0	1,4- 2,0	0,6(0,85)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Interme	diate rated	speed 6	Control- lever deflection in degrees 7	rev/min	er rated speed Control rod travel mm 9		rque control Control rod travel mm
loose	800 X= 4	0,3-1,0 1,0	-	-	-	ca.24	350 100 350	4,4 min.20,0 4,8-5,0	_	
Ca.62	10,9 1450	1240-1250 0,3- 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(20)	i-load stop mp=40°C (104°F) cm ³ /1000 strokes	Rotational- speed limitat Note- changed to) rev/min	Lagran	el delivery aracteristics cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	49)	Stop Control rod travel mm
900	121,0-123,0 (119,0-125,0)	1240-1250*	-	-	•	190,0-240, 20,0- 21,0 mm RW 14,0-20,0 (11,0-23,0) -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11,0 u8 1. Edition

PE 6 P 120 A 720 RS 7001

ROV200-1000 PA 612

supersedes

^a companyScania engine: DN 11 **BUS-Motor**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

to FD 052:

4,4-4,5 mm

* from FD 141: 5,0-5,1
Port closing at prestroke mm (from BDC) (4.35-4.55)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,3+0,	18,3-18,5	0,5(0,9)		,	
225	4,0-4,2	0,8-1,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermed	iate rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control	Control rod (1a travel	Degree of deflection of control	n	Control rod travel	Degree of deflection of control		Control rod travel		1
1.7	rod travel mm	rev/min (2	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1000	15,2-17,8	-	-	_	ca.10	100	min.5,6	150	0,5-0,8
ca. 59		1040-1050 1120-1150 0-1,0				260-365	225	4,0-4,2		3,0-3,5 5,0-5,2 7,7
		01,0				3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten	- •	Rotational-speed 2b limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 5b		Starting Idle switchir	. 0	Torque- travel	Control Control
rev/min	cm³/1000 strokes rev/min (m³/1000 stroke		cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes rev/m		travel mm	
1	2	3	4	5	6	7	8	9
1000	183,0-185,0 (180,0-188,0)	1040-1050*	600	164,0-168,9 (161,0-171,0	100	250,0-300,0 20,0- 21,0 mm RW	1	<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil - ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 m 4. Edition

PE 6 A 85 D 320 RS 2546

RSV 250-750 A 7 B 2125 R

supersedes

companyDAF DD 575 DF/615 DT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

RW = 9 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	12,1+0,1	6,0 - 6,2	0,3(0,45)			
250	8,4-8,6	0,8 - 1,4	0,2(0,4)			
						<u> </u>

Adjust the fuel delivery from each outlet according to the values in [

Port closing difference between control-rod travel 9 and max. = $3,0-4,0^{\circ}$.

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Low	er rated spe	ed	3 To:	que control
Degree of deflection of control lever	flection travel control		Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	· •	Control rod travel rev/min mm		Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
des-	800	0,3 - 1,0	-	-	_	ca. 1	6 250	8,5	750	12,1+0,
serrē	x =	4,5							700	12,1+0,
€3.40	11,1 4,0 995	770-780 795-815 0.3-1.7			+ 2 (1 mm		250 260 -	** 320=2,0mn		·

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,

then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-k	oad stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	Sa) Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
750	60,5 - 62,5 (58,5 - 64,5)		-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rud travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1 3. Edition

Εn

PES6A90D410RS2293

RSV575-1250A1B618L

supersedes 82

company: Daimler-Benz

engine OM 352

88 kW (120 PS)

stoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

i. i dei injoonen	2.15-2.25	•
ort closing at prestroke	(2,10-2,30)	mm (from BDC)
	(-)	

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1230	10,5+0,	6,1-6,2	0,3(0,45)			_
575	6,4-6,6	1,1-1,/	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	rated speed rev/min 2	Control rod	Intermediate Degree of deflection of control lever		ed Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	ed Control rod travel mm	(3) Tor rev/min 10	que control Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca.28	575	5,5	-	-
		,0	ŀ					min.19,0 10=2,0		
Ca.58 (s)	9,5 4,0 1250	1250-1260 1275-1295 0.3-1.7		·	2 0 mm c	ontrol		** max.1,0		

** Set idle-speed auxiliary spring at 2,0 mm control-rod travel,

then 1/2 turn back.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	Rotational-speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	(5a) Idle stop		
Test oil tem rev/min 1	p 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm	
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	_	100	71,0-81,0 14,7- 15,1mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 s 4 1. Edition

PES6A90D410RS2293

RSV 350-1400A0B1080DL

supersedes

company:Daimler-Benz

engine: 0M 352

92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

		(2,10 2,007				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,3-6,4	0,3(0,45))		
350	7,4-7,6	1,2-1,6	0,2(0,4)	•		
	į					
			<u></u>	<u> </u>	<u></u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	 -	-	-	ca.23	350	7,0	1400	9,7-9,8
	X=0	,0					100 350	min.19,5 7,4-7,5	600	9,8+0,2
ca.68	8,7 4,0 1600	1440-1450 1510-1540 0,3-1,7						70=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-loa	ad stop	6 Rotational- speed limitat	3a) Fuel delivery characteristics		Starting Idle	fuel delivery	(5a) Idle stop		
Test oil temp	. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1400	63,0-64,0 (61,0-66,0)	1440-1450*	600	51,0-53,0 (49,0-55,0)	100	78,0-88,0 15,1- 15,5 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

estoil-ISO 4113

PE 8 P 100 A 320 LS 810

RQV 300-1250 PA 227 R .

supersedes

company Daimier Benz engine: OM 402

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 + 0,50

0 -45 -90 -135 -180-225-270-315 (+ 0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{pmatrix} 3,35-3,55 \\ 3,40-3,50 \end{pmatrix}$ mm (from BDC)

FOR COSING AL PIOC		3,40-3,50				
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
-	4	3				
1250	10,3-10,4	10,0 - 10,2	0,3 (0,6)] ,
300	7,4-7,6	1,7 - 2,3	0,3 (0,5)			
600		C, Sp. 4-5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated spe	eed	Lower rated	speed		Stiding s	leeve travel
deflection	rev/min Control	Control rod (1a) travel	denection		Control rod travel	Degree of deflection		Control rod travel		1
of control	rod travel	mm rev/min (28)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2_	3	4	5	6	7	8	9	10	11
ca. 68	1250	15,2-17,8	-	-	-	ca. 12	100	min. 9,0	300	0,4-1,5
	1450	0 - 1					300	7,4-7,6	800	4,4-4,8
ca. 66	9,3	1290-1300					630-6	590 = 2 , 0	1250	8,2
	4,0	1330-1360				③				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2			Fuel deliv	rery characteristics 5a peed 5b	Starting Idle switchin	\mathbf{O}	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	78,0-83,0 (76,0-85,0)	100	110,0-130,0		
					100-2	220 (80-240)		

Checking values in brackets

*1 mm less control rod travel than col. 2